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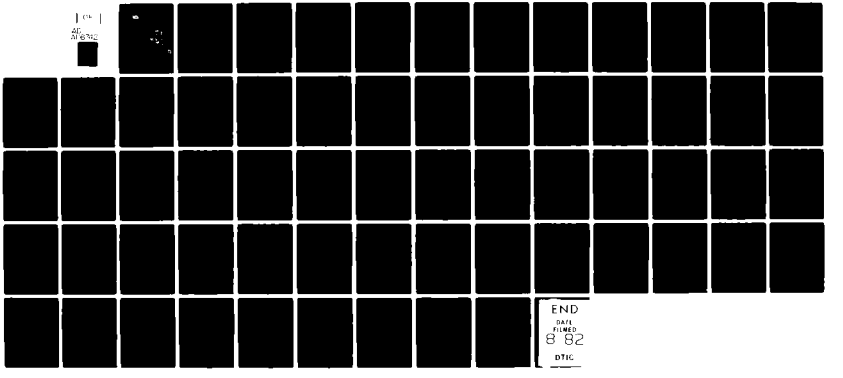

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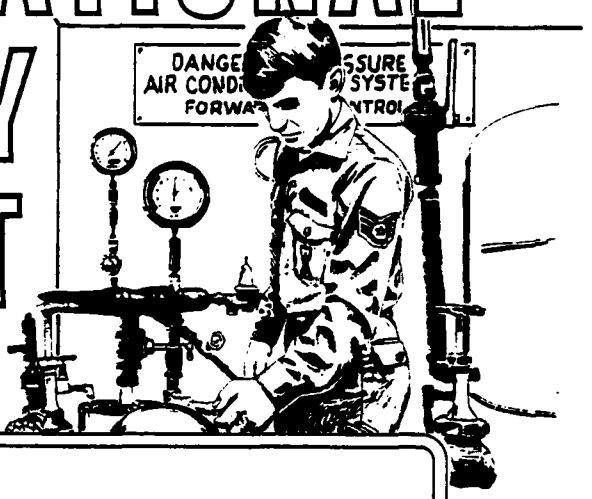
UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT



MINUTEMAN MISSILE FACILITIES
CAREER LADDER
AFS 445X0G
AFPT 90-445-440
JUNE 1982

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150

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PREFACE

This report presents the results of a detailed Air Force occupational survey of the Minuteman Missile Facilities career ladder (AFS 445X0G). HQ ATC/TTQC requested the study under USAF Program Technical Training Volume II, dated June 1980. AFR 35-2 contains the authority for conducting occupational surveys. Computer outputs used in this report are available to operating and training officials upon request.

First Lieutenant Kevin F. Morefield, Inventory Development Specialist, developed the survey instrument. Sergeant Harold R. Tackett provided computer support. Mr. Guy B. Cole and First Lieutenant Martin L. Fracker analyzed the data and wrote the final report. Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, reviewed the report and approved it for release.

Copies of this report are distributed to Air Staff sections, MAJCOMs, and other interested training and management personnel (see distribution list). Additional copies may be requested by contacting the USAF Occupational Measurement Center, attention of the Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150.

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SUMMARY OF RESULTS

1. Survey Objectives: Headquarters Air Training Command, Chanute/Lackland Training Division (HQ ATC/TTQC), requested this survey to look at specialization within the field and any need to subdivide it further, as well as to determine whether personnel assigned to Wing 1, Squadron 20, and Wing 6 (modernized facilities) should receive different training than personnel assigned to Wings 1 through 5 (standard facilities) installations.

2. Survey Coverage: Sixty-four percent (458) of the career ladder members were surveyed. The final sample included representative paygrade, skill level, and missile wing groups.

3. Job Structure: The career ladder is composed of five major groups: periodic and field maintenance teams; power, refrigeration, and electric (PREL) shop personnel; technical training center and team training branch instructors; supervisors; and job controllers.

4. AFR 39-1 Specialty Descriptions: The specialty descriptions cover both the Minuteman and Titan systems. Examination of those tasks that apply to Minuteman indicated that these descriptions adequately cover Minuteman facilities maintenance tasks and duties.

5. Training Analysis: In general, the 445X0G Specialty Training Standard (STS) was found to cover Minuteman missile facilities tasks; however, a few exceptions were noted which should be considered in any future STS revision. By contrast, several gaps were found in the POI which did not include criterion objectives for 88 tasks that may require structured training. Although some of these tasks are covered by team training branches at missile installations, others are not included in the POI because the technical school does not have the necessary training equipment. Turning to the standard versus modernized facility issue, training emphasis ratings for tasks distinguishing these two groups supported providing separate tracks for these personnel in either the basic course or the team training branches. Comparing maintenance team to PREL shop tasks, all maintenance team tasks (power production and environmental control system maintenance) were rated above average in training emphasis, while all PREL shop tasks (support vehicle and guidance and control liquid cooling system maintenance) were rated below average. However, training emphasis data for PREL shop tasks should be considered in light of job satisfaction data showing that PREL shop personnel were dissatisfied with the use of their training on the job, as well as the fact that nearly half of the PREL shop tasks had above average difficulty ratings.

6. Implications: Survey findings did not support further subdivision of the 445X0G career ladder since members did not clearly specialize in power production, environmental control, plumbing, or electrical jobs. Nevertheless, findings did support channelizing basic technical training, since modernized facility personnel currently need more training on power control centers, master control panels, and monitor panels than standard facility personnel, while the latter group needs more training on automatic switching units and oxygen regeneration units. Finally, job satisfaction data indicated PREL shop personnel are not satisfied with how their training is used on the job and suggests training managers should examine PREL shop training for possible solutions to this problem.

OCCUPATIONAL SURVEY REPORT
MINUTEMAN MISSILE FACILITIES SPECIALTY
(AFSC 445X0G)

INTRODUCTION

This is a report of an occupational survey of the Minuteman Missile Facilities career ladder (AFS 445X0G). The Occupational Analysis Branch completed the survey in April 1982. The Branch last surveyed the career ladder in 1976.

Objectives

This survey was requested to address two major issues. The first was whether 445X0G personnel specialized sufficiently in air conditioning, plumbing, electrical, or power production jobs to justify further subdivision of the career ladder. The second issue was whether skills needed to maintain modernized facility systems at Wing 1, Squadron 20, and Wing 6 differ sufficiently from those needed to maintain standard systems at Wings 1 through 5 to justify providing two tracks within the 3ABR445X0G basic technical course.

Specialty Background

In September 1961, the Air Force created the Minuteman Missile Facilities specialty (AFS 541X0G) and two parallel specialties: Minuteman Electrician (AFS 542X0G), and Plumbing, Ballistic Missile (AFS 552X5Y). In 1972, these latter two career ladders were merged into the 541XOG career ladder. Eight years later, the Air Force realigned the career ladder into the Missile Maintenance career field and designated it AFS 445X0G. Today, career ladder members maintain missile facility power production and environmental control systems, support vehicles, guidance and control liquid cooling systems, and a variety of miscellaneous equipment, such as elevator work cages and emergency power batteries. All members receive their initial training in the basic technical course taught at Chanute Technical Training Center and most go on to additional formal training at the missile wing, while about ten percent receive no additional training other than on-the-job experience.

SURVEY METHODOLOGY

Inventory Development

USAF Job Inventory AFPT 90-445-440 was the data collection instrument used for this occupational survey. The survey instrument from the 1976 survey served as a starting point for the new inventory. The developer carefully reviewed the previous task list to determine the appropriateness of each task and added new tasks by reviewing current career ladder publications and directives. Eleven subject-matter experts from eight different bases reviewed and validated the resulting task list. In addition, five staff personnel directly associated with the management or training of personnel in this career ladder identified problem areas and questions to be addressed in analysis of the data.

Survey Administration

During the period June through September 1981, Consolidated Base Personnel Offices in operational units worldwide administered the survey to personnel holding the Minuteman Missile Facilities 445X0G DAFSC. Survey participants were selected from a computer-generated mailing list provided by the Air Force Human Resources Laboratory (AFHRL).

Each individual who filled out an inventory first completed an identification and biographical information section and then checked each task performed in their current job. Next, members rated the tasks on a nine-point scale showing relative time spent on each as compared to all other tasks. Ratings ranged from one (very small amount of time spent) to nine (very large amount of time spent).

Survey Sample

A representative sample of career ladder personnel was selected to participate in this survey. Tables 1, 2, and 3 show how the final sample compared to the actual population of career ladder members. As shown in Table 1, all members of the specialty are assigned to SAC except those few in ATC involved with Technical Training. Although the sample adequately represented paygrade and total active federal military service (TAFMS) groups, the percent of E-2 and E-3 airmen in the sample was smaller than normal assigned strength (see Table 2). However, their slight under-representation did not present a serious problem. Over sixty percent of the sample are in their first enlistment (see Table 3), which is an exceptionally high proportion compared to most other Air Force specialities. Since the lower grades (E-2 and E-3) are slightly underrepresented in the sample (versus assigned strength), the actual proportion of first-enlistment 445X0G personnel in the field probably exceeds 64 percent of the total career field population.

TABLE 1

COMMAND REPRESENTATION OF SURVEY SAMPLE

COMMAND	PERCENT OF ASSIGNED	PERCENT OF SAMPLE
SAC	98	97
ATC	2	3
TOTAL	100	100

TOTAL ASSIGNED - 724
TOTAL BOOKLETS MAILED - 711
TOTAL BOOKLETS RETURNED - 458
RETURN RATE - 63 PERCENT

TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

PAYGRADE	PERCENT OF ASSIGNED	PERCENT OF SAMPLE
AIRMAN (E-2, E-3)	40	32
E-4	31	35
E-5	17	19
E-6	6	7
E-7	6	7
E-8	*	*
TOTAL	100	100

*LESS THAN .5 PERCENT

TABLE 3

TAFMS DISTRIBUTION OF SURVEY SAMPLE

TAFMS (MONTHS)	PERCENT OF SAMPLE
1-48	64
49-96	13
97-144	8
145-192	7
193-240	6
241+	2
TOTAL	100

Data Processing and Analysis

Once job inventories are returned from the field, task responses and background information are optically scanned. Other biographical information (such as name, base, AUTOVON extension) are keypunched onto disks and entered directly into the computer. Once both sets of data are in the computer, they are merged to form a complete case record for each respondent. Computer-generated programs, using Comprehensive Occupational Data Analysis Program (CODAP) techniques, are then applied to the data.

CODAP produces job descriptions for respondents based on their ratings of specific tasks. Job descriptions include DAFSC groups, TAFMS groups, and MAJCOM groups. These descriptions provide information on percent members performing each task and the average relative time spent performing each task. In addition to these job descriptions, the computer produces summaries that show how members of each group responded to each background item. Background items identify characteristics of the group, such as DAFSCs represented, time in career field, Total Active Federal Military Service, experience in the various functional areas, and equipment operated.

The CODAP automated job clustering program organizes individual jobs into similar units of work by comparing each individual job description in the sample to every other job description in terms of tasks performed and the relative amount of time spent on each task in the job inventory. The automated system locates the two job descriptions with the most similar task ratings and combines them into a composite job description. In successive stages, the system adds members to the initial group or forms new groups. The resulting analysis of job groups identifies: (1) the number and characteristics of jobs within the career ladder, and (2) those tasks the personnel in each job group perform.

The basic group used in the clustering process is the Job Type. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing them. When several job types are similar, they group together as Clusters. When a job type is too unique to group into any cluster, it becomes an Independent Job Type.

TABLE 4

DISTRIBUTION OF TASK DIFFICULTY AND TRAINING EMPHASIS RATERS

MAJOR COMMAND	PERCENT OF ASSIGNED	PERCENT OF TASK DIFFICULTY RATERS	PERCENT OF TRAINING EMPHASIS RATERS
SAC	98	88	92
ATC	2	12	8
	100	100	100

Task Factor Administration

In addition to the job inventory, selected senior 445X0G personnel also completed a second booklet for task difficulty or training emphasis. Table 4 shows the distribution of task difficulty and training emphasis raters. These task factor booklets were processed separately from the job inventories.

Task Difficulty. Task difficulty is defined as the length of time an average airman needs to learn to do a task. Given this definition, 26 7-skill level NCOs rated the difficulty of all tasks in the inventory. To ensure that the ratings were valid, each NCO's ratings were compared to those of every other NCO. A statistical measure of their agreement was computed and indicated they had rated the tasks similarly (the interrater agreement as calculated from standardized components of variance of group means was .90). Ratings were adjusted so that tasks of average difficulty have ratings of 5.0. These ratings are then used to compute a job difficulty index (JDI) for each group within the sample. Jobs of average difficulty will have a JDI of 13.0. Since the JDI is computed to reflect both the number of tasks performed and the average difficulty of those tasks, decision-makers can use the index to compare the overall difficulty of jobs performed by the different groups within the career ladder.

Training Emphasis: A separate group of 24 7-skill level NCOs rated the emphasis needed in training first-term airmen on each task, using a scale of zero to nine. Again, a statistical measure of their agreement was computed and indicated they had rated the tasks similarly (the interrater agreement was .93), which reflects a general consensus on what should be trained. Tasks highest in training emphasis had ratings of 5.2 or higher, while the average rating was 3.2.

SPECIALTY JOBS
(Career Ladder Structure)

One of the most important functions of the USAF occupational analysis program is to identify the distinct jobs performed within a specialty and how these jobs relate to one another. The diversity of jobs is important to the USAF Personnel Classification System. If the jobs are too diverse or specialized, HQ AFMPC may need to split the specialty into separate career ladders (or shredouts).

Job diversity within a specialty is also important information for the training community. Common resident training is most efficient when specialty jobs are similar (in terms of required skills and knowledges). If jobs are too diverse, technical school training may not be cost-effective and new personnel must learn through on-the-job training (OJT).

Additionally, job information is used to analyze career progression patterns, and specialty documents (AFR 39-1 Specialty Description, Specialty Training Standard, etc.) to identify needed changes. Job data are also used to identify morale (job satisfaction) problems, to identify trends, and to highlight issues needing management attention.

OVERVIEW

Analysis of the Minuteman Missile Facilities survey results show there are three clusters and two independent job types. Figure 1 illustrates how these clusters and independent job types relate to each other. These five groups are listed below:

I. Maintenance Team Members (GRP010, N=262)
II. Power, Refrigeration, and Electric (PREL) Shop Personnel (GRP071, N=46)
III. Training Personnel (GRP060, N=7)
IV. Supervisors (GRP037, N=69)
V. Job Controllers (GRP083, N=16)

Eighty-nine percent of the airmen surveyed fell into these five groups. The remaining eleven percent performed few tasks and occupied specialized positions, such as parts researchers, equipment monitors, technical order file clerks, property monitors, and program planners.

Most career ladder members work on maintenance teams and concentrate their time on power production and environmental control system tasks. Since missile sites are located several miles from the base, these teams spend many hours a week traveling to the sites to perform their jobs. By contrast, the ten percent assigned to PREL shops work in on-base locations where they maintain support vehicles, as well as repair guidance and control liquid cooling systems that have malfunctioned, been removed from the missile launcher, and sent to the shop. The remainder of career ladder members formed small groups of instructors, supervisors, and job controllers. Instructors included both resident technical school and missile site team training branch personnel who performed few technical tasks, but spent large

amounts of time on training-related tasks, such as writing and scoring tests. Supervisors included 7-skill level personnel who performed mostly supervisory tasks and few, if any, technical tasks. Finally, job controllers spent all of their time managing work orders and tracking the status of maintenance actions.

Analysis of job difficulty and job satisfaction data revealed few major differences among the five groups, although maintenance team and PREL shop personnel had more difficult jobs overall than other personnel. An important exception, however, was that PREL shop personnel were clearly less satisfied with how their training was used on the job than any other group.

I. Maintenance Team Members, (GRP010, N=262). Maintenance teams inspect and repair heating, air conditioning, and power generation systems at the missile sites, which are all located several miles from the base to which the maintenance teams are assigned. As a result, team members spend ten or more hours each week traveling to and from the various sites. Although there are two types of teams--periodic maintenance and field maintenance--they both perform a broad range of common tasks. For example, of the 192 environmental control and power generation system maintenance tasks included in the task inventory, both teams performed over 100 of the same tasks. A representative sample of these tasks includes:

perform environmental control system (ECS) startups and checkouts
perform ECS shutdowns and checkouts
adjust brine chiller control panel controls
adjust air conditioning subsystem controls
adjust ECS pneumatic electrical switches
leak check refrigerant systems
isolate malfunctions in air conditioning subsystems
perform operational checkouts of diesel engine safety and alarm devices
adjust diesel engine fuel oil system components
adjust launch tube heating subsystem controls

The main difference between field and periodic maintenance teams lies in when they perform maintenance tasks. Field maintenance teams are called in to repair system malfunctions whenever they occur. Periodic maintenance teams, on the other hand, inspect facility systems on a regularly scheduled basis and repair any malfunctions they happen to find during the inspection. Thus, although periodic maintenance teams perform the same maintenance tasks as field maintenance teams (albeit under different conditions), they also perform inspection tasks that field maintenance teams do not perform. These include periodic inspections of:

diesel starting batteries
diesel engine generator control panels
power control centers
diesel engine cranking and alarm panels
diesel engine cooling systems
diesel engine safety and alarm devices
air conditioning subsystems and controls

brine subsystems
environmental control makeup air systems
instrument air systems
emergency air conditioning subsystems and controls

Since periodic and field maintenance teams perform the same maintenance tasks, they do not form distinct job types. Although one team performs inspection tasks while the other doesn't, this distinction is blurred by the fact that field maintenance teams often loan members to periodic maintenance teams, and vice versa. Consequently, field maintenance team members may sometimes perform inspection tasks when periodic maintenance teams are short-handed.

Most maintenance team members are relatively inexperienced airmen. Eighty-four percent are first-termers (see Table 5). Although this level of inexperience could present a problem, the missile wings have an aggressive training program for maintenance team personnel that begins as soon as they arrive from the technical training school. According to Wing personnel, these new airmen are immediately assigned to a team and the entire team is then trained together at a simulated missile site. This training is administered by team training branches whose only function is to bring new members up to a 5-skill level. The result of this program is that most team members achieve a 5-skill level before they actually begin working as maintenance technicians.

II. Power, Refrigeration, and Electric (PREL) Shop Personnel, (GRP071, N=46). Unlike maintenance teams, PREL shop personnel do not travel to missile sites and do not maintain facility systems. Instead, they work in on-base shops and maintain support vehicles, guidance and control liquid cooling systems, emergency power batteries, elevator work cages, and other miscellaneous equipment. Support vehicle systems they maintain include the environmental control, electrical, auxilliary power unit, and hoist systems of payload transporters, B-vans, M-vans, and transporter erectors. These vehicles are used at the missile sites but are maintained in the PREL shops. Similarly, the guidance and control liquid cooling systems are part of the missile sites. Each missile launcher has a cooling system for the missile's guidance and control unit. When the cooling system fails, maintenance team members remove the defective components and send them to the PREL shop for repair. The same procedure applies to emergency power batteries and elevator work cage components.

According to some shop supervisors interviewed by phone, every PREL shop member seeks to be fully qualified to work on every system that falls under PREL shop responsibilities. Every member works on everything at one time or another. As a result, there are no job types within the PREL shop cluster. To illustrate, of the 105 support vehicle and guidance and control liquid cooling system maintenance tasks, 95 were performed by nearly three-fourths of the PREL shop members. In addition, two-thirds or more of the members performed the following miscellaneous tasks:

perform periodic inspections of portable air conditioner auxilliary power units (APUs)
adjust portable air conditioner APUs
perform periodic inspections of portable air conditioner electrical systems
remove or replace elevator work cage components
adjust elevator work cage components
perform periodic inspections of portable air conditioner environmental control systems
remove or replace portable air conditioner APU components
isolate malfunctions in portable air conditioner APUs
adjust portable air conditioner electrical system components

Like maintenance team personnel, most PREL shop members are first-termers (see Table 5); but, unlike maintenance teams, PREL shops do not have a special training program for new members. Instead, new PREL shop personnel become qualified on the various systems only through actual on-the-job experience. As a result, according to some PREL shop supervisors, members may need three years to become qualified on all of the systems maintained.

III. Training Personnel, (GRP060, N=7). Seven of the missile facilities specialists assigned to instructor positions formed this independent job type. Four of them were instructors at the Chanute Technical Training Center and three were team training branch instructors. These seven personnel spent nearly all of their time performing just a few tasks. Among these tasks were:

score tests
administer tests
write test questions
develop lesson plans
demonstrate how to locate technical information
initiate TO or SAC CEM changes
counsel trainees on training progress
conduct resident course training or OJT

Although these seven instructors were the only ones who formed a distinct job group, 43 of the career ladder members surveyed identified themselves instructors. Most of these personnel were team training branch instructors, but 13 were instructors at Chanute. Over half of these 43 members responded to the survey in the same way as the maintenance team personnel and, consequently, grouped with the maintenance team cluster. Another third of the 43 did not group with anyone.

IV. Supervisors, (GRP037, N=69). Members of this group spent most of their time supervising others and less than three percent of their time performing technical tasks. Four job types were evident within this clusters: (1) Shop Chiefs; (2) Quality Control Chiefs; (3) Periodic Maintenance Team Chiefs; and (4) Support Chiefs.

Most shop chiefs supervised PREL shops, but a few supervised field maintenance team sections. Tasks that distinguished them from other supervisory job types included:

initiate personnel action requests
assign sponsors for newly assigned personnel
dispatch maintenance teams
establish organizational policies, office instructions (OI), or standing operating procedures (SOP)
coordinate missile facilities maintenance with specialist work centers
prepare job descriptions
evaluate suggestions

Quality control chiefs managed maintenance evaluation and quality control programs. They performed several distinctive tasks, among which were:

compile information for reports or staff studies
evaluate inspection reports or procedures
evaluate TO or SAC CEM changes
evaluate missile personnel evaluation programs
prepare quality control inspection reports

perform activity inspections
evaluate training methods, techniques, or programs
supervise military personnel other than AFSC 445X0G

Members of this group averaged over 16 years military service and worked at wing headquarters or higher.

Periodic maintenance team chiefs supervised four to six team members. Most of these chiefs were staff sergeants with over six years of military service; however, two-thirds had less than two years in the career field. While their jobs were similar to those of the shop chiefs, these team chiefs spent more time performing administrative tasks such as:

make entries on Maintenance Data Collection Record forms (AFTO Form 349)
make entries on ICBM Maintenance Dispatch Record forms (SAC Form 529)
make entries on Issue/Turn-In Requests (AF Form 2005)
brief debriefing section on maintenance of launch facility (LF) or launch control facility (LCF)

Support chiefs supervised 5-skill level personnel in a variety of non-maintenance, support-related settings, including technical order libraries, parts research sections, and wing headquarters. Although they were similar to the other job type groups in this cluster, they performed fewer tasks. Members of this group spent more time on the following tasks than members of any other group:

write APRs
counsel personnel on personal or military related problems
schedule leaves or passes
assign personnel to duty positions
inventory equipment, tools, or supplies
write correspondence
maintain training records, charts, or graphs
direct maintenance or utilization of equipment, supplies, or workspace
determine requirements for space, personnel, equipment, or supplies

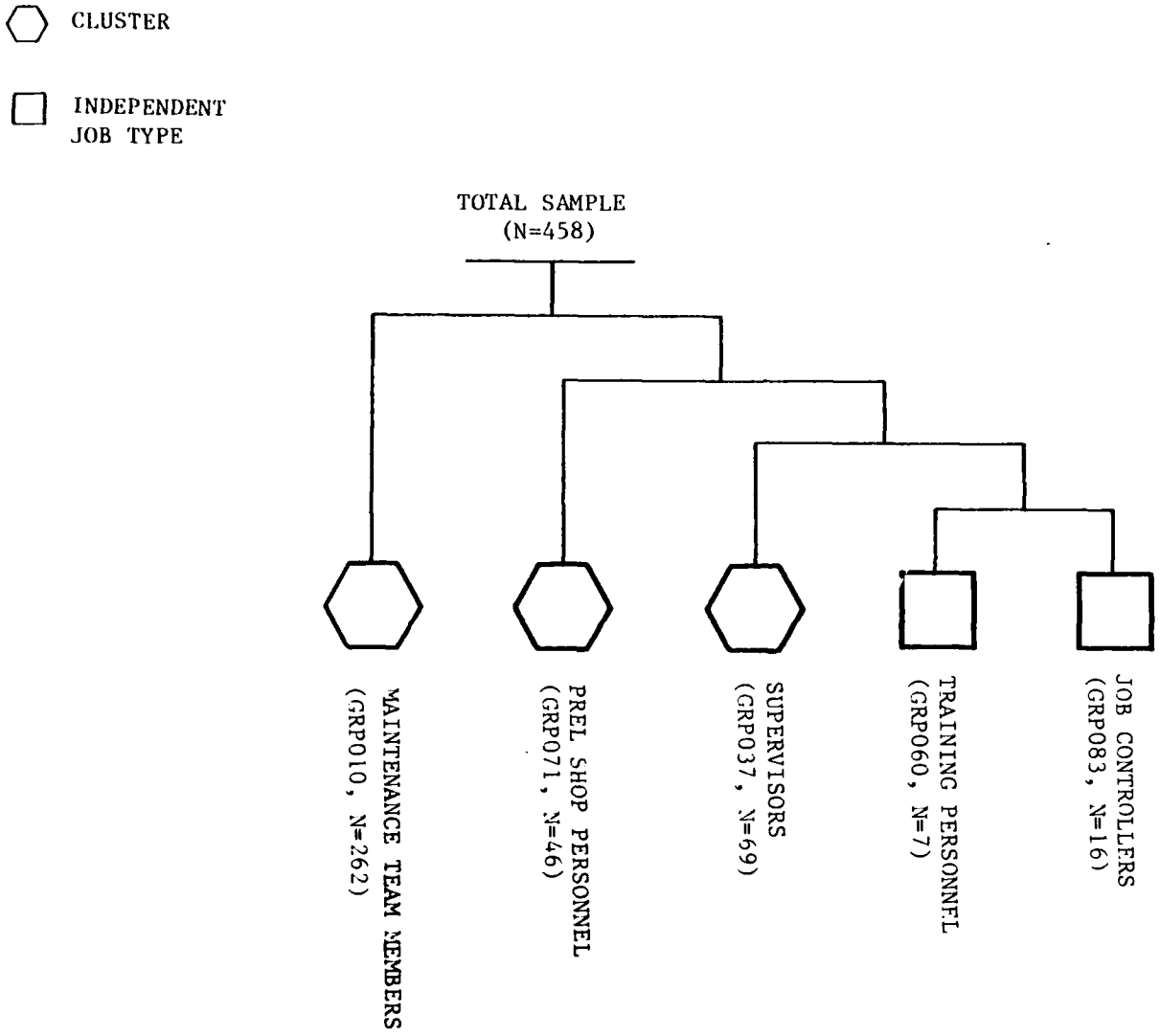
V. Job Controllers, (GRP083, N=16). These personnel schedule and control missile facilities maintenance. Tasks they perform include:

initiate work orders
maintain boards, graphs, or charts
coordinate missile facility maintenance with specialist work centers
determine work priorities
dispatch maintenance teams
verify data on maintenance activities computer products
coordinate missile facility maintenance with staff agencies
check or change event listings
make entries on Maintenance Data Collection Record (AFTO Form 349)

Although some of these tasks are usually found in supervisory jobs, these individuals do not supervise others. Rather, they coordinate maintenance activities and update maintenance records. To do their job adequately, these personnel must constantly be aware of the status of each maintenance action and each piece of equipment to be maintained.

FIGURE 1

MINUTEMAN MISSILE FACILITIES CAREER LADDER STRUCTURE



Comparison of Specialty Jobs

Of the five major job groups identified in this study, only two performed primarily maintenance tasks: maintenance teams and PREL shop personnel. The remaining three groups performed training, supervisory, or job control tasks almost exlusively. Table 5 summarizes several kinds of information about personnel in each job group. Well over half of all career ladder members work on maintenance teams, while only ten percent are assigned to PREL shops. Although supervisors were the second largest group, they accounted for only 15 percent of the sample. As for the trainers and job controllers, they accounted for two and three percent of the ladder, respectively.

Besides being the only ones to perform maintenance tasks, maintenance teams and PREL shop personnel also had the most difficult jobs as measured by the Job Difficulty Index (JDI). Job controllers had the least difficult job, while trainers and supervisors fell in between the two extremes. However, these differences were due only to variations in the number of tasks the five groups performed, since the average task difficulty per unit time spent was essentially the same for all of the groups. For example, maintenance teams and PREL shop personnel each performed over 150 tasks, while job controllers performed only 14.

The three groups with the least difficult jobs had the highest overall job satisfaction indicators (see Table 6). For example, job controllers expressed much more job interest than any other group and also perceived their talents and training as being well used. In addition, trainers, supervisors, and job controllers expressed substantially higher reenlistment intentions than maintenance team and PREL shop personnel. However, this particular difference is probably caused by the fact that over 80 percent of the latter two groups are first termers who have typically low reenlistment rates, while most members of the other three groups are second enlistment and career personnel.

Although maintenance team and PREL shop personnel did have lower overall job satisfaction indicators than the other groups, still the majority of these airmen appeared more or less satisfied. However, the proportion of PREL shop personnel who found their job interesting was smaller than for Maintenance Team Personnel. This trend was also evident in other job satisfaction indicators, especially on the perceived utilization of training.

Several factors may have caused PREL shop personnel to appear less satisfied with the use of their training. Among these is the fact that maintenance team personnel have their technical school training formally supplemented by team training branches at the missile installation, while PREL shop personnel receive only informal on-the-job training. In addition, PREL shop members initially may feel unprepared for their assigned duties, since the basic resident course concentrates on maintenance team tasks rather than PREL shop tasks. A third factor may be that the basic course leads PREL shop personnel to expect to work on facility air conditioning systems once they begin their assigned duties. According to some senior PREL shop supervisors, this expectation is very motivating for many airmen, since they

view air conditioning maintenance skills as highly marketable in the private sector. Consequently, when these airmen are introduced to their PREL shop duties and discover that facility air conditioning maintenance is not included (although they do some work on portable air conditioners), they may feel frustrated and disappointed. In any case, decision-makers probably should investigate the causes of the relative dissatisfaction of PREL shop personnel with the use of their training to determine whether the problem can be solved.

TABLE 5

COMPARISON OF BACKGROUND INFORMATION FOR JOB GROUPS

	MAINTENANCE TEAM MEMBERS GRP010 (N=262)	PREL SHOP PERSONNEL GRP071 (N=46)	TRAINERS GRP060 (N=7)	SUPV GRP037 (N=69)	JOB CONTROL GRP083 (N=16)
PERCENT OF SAMPLE	57%	10%	2%	15%	3%
SKILL LEVEL*					
44530	17%	22%	15%	0%	0%
44550	75%	70%	86%	16%	75%
44570	8%	9%	0%	78%	25%
AVERAGE GRADE	4	4	5	6	5
AVERAGE MONTHS IN SERVICE	41	41	53	166	79
PERCENT MEMBERS IN FIRST ENLISTMENT	84%	85%	29%	4%	38%
PERCENT MEMBERS WITH LESS THAN TWO YEARS IN CAREER FIELD	34%	28%	29%	19%	0%
AVERAGE NUMBER OF TASKS PERFORMED	181	150	20	56	14
AVERAGE TASK DIFFICULTY PER UNIT TIME SPENT	4.96	4.87	5.0	4.94	4.57
JOB DIFFICULTY INDEX	15.98	14.86	7.51	9.98	4.81

* Column totals are less than 100 percent if some personnel left survey items blank

TABLE 6

JOB INTEREST, PERCEIVED UTILIZATION OF TALENTS AND TRAINING, AND REENLISTMENT INTENTIONS FOR CLUSTERS AND INDEPENDENT JOB TYPE GROUPS*

	MAINT TEAMS GRP010 (N=262)	PREL SHOP PERSONNEL GRP071 (N=46)	TRAINERS GRP060 (N=7)	SUPV GRP037 (N=69)	JOB CONTROL GRP083 (N=16)
EXPRESSED JOB INTEREST:					
DULL	14	24	14	9	0
SO-SO	20	22	29	25	6
INTERESTING	60	54	57	66	94
PERCEIVED UTILIZATION OF TALENTS:					
LITTLE OR NOT AT ALL	24	33	14	14	19
FAIRLY WELL OR BETTER	74	67	86	86	81
PERCEIVED UTILIZATION OF TRAINING:					
LITTLE OR NOT AT ALL	10	37	14	25	13
FAIRLY WELL OR BETTER	90	63	86	75	87
REENLISTMENT INTENTIONS:					
I PLAN TO RETIRE	2	2	0	22	0
NO OR PROBABLY NO	55	57	14	12	31
YES OR PROBABLY YES	43	37	86	65	69

* Column totals are less than 100 percent if some personnel left survey items blank

ANALYSIS OF DAFSC GROUPS

The previous section examined the major functional groups within the career ladder and identified those tasks each performs. This information can be used to evaluate whether the AFR 39-1 missile facilities specialty descriptions adequately cover Minuteman facilities maintenance tasks. But since the 39-1 descriptions are presented by skill level, the functional group job descriptions must first be examined by skill level. This section undertakes such an analysis.

As discussed earlier, well over half of the career ladder members worked on maintenance teams. Since 92 percent of maintenance team members possessed 3- and 5-skill level DAFSCs, one might guess that most 3- and 5-skill level personnel are members of maintenance teams.* In fact, as shown in Table 7, this conclusion is correct. Of the 313 members with 3- or 5-skill level DAFSCs, 240 (77 percent) worked on maintenance teams. Consequently, 3- and 5-skill level job descriptions should closely resemble that of the maintenance teams. As it turns out, those tasks performed by 60 percent or more of 3-skill level personnel include only maintenance team tasks such as:

perform environmental control system (ECS) startups and checkouts
adjust air conditioning subsystem controls
adjust brine chiller control panel controls
adjust ECS flow alarms
adjust ECS pneumatic electrical switches
adjust ECS restrictors
adjust ECS thermostats
charge refrigerant subsystems with refrigerant or oil
isolate malfunctions in air conditioning subsystems
perform ECS shutdowns and checkouts
adjust brine chiller control subsystems
adjust ECS electrical switches
isolate malfunctions in brine chiller control panels
remove or replace circuit breakers
adjust diesel engine safety and alarm device components
remove or replace diesel engine hardware, e.g., gaskets or bolts

Most of these tasks involve environmental control system maintenance while the remainder involve maintenance of power production systems reflecting the fact that maintenance teams spend somewhat more time on the former than on the latter.

In contrast to 3- and 5-skill level personnel, most 7-skill level members belong to the supervisors functional group rather than to the maintenance teams. This finding suggests that the 7-skill level job description should differ markedly from that of 3- and 5-skill level personnel while being similar to that of the supervisors. Table 8 presents several prominent differences between 3- and 5-skill level versus 7-skill level job descriptions. Note that

* Comparison of 3- and 5-skill level job descriptions revealed no important differences, so these two groups are considered together.

while 3- and 5-skill level airmen are more likely to work on alarm control panels, electrical units and switches, brine chiller control panels, and diesel engine systems, 7-skill level personnel are more likely to work on reports and staff studies, maintain records, and manage space, personnel, and equipment resources. Clearly, 7-skill level personnel tend to perform supervisory tasks rather than maintenance tasks. In fact, less than 22 percent of 7-skill level personnel performed any maintenance tasks at all while the other 78 percent performed supervisory and administrative tasks exclusively. To illustrate, tasks performed by 50 percent or more of these personnel included (tasks listed in Table 8 have been omitted here):

supervise missile facilities specialists (AFSC 44550G)
counsel personnel on personal or military related problems
prepare airmen performance reports (APRs)
inventory equipment, tools, or supplies
write correspondence
make entries on issue/turn in request forms (AF Form 2005)
make entries on temporary issue receipt forms (AF Form 1297)
inspect protective equipment
determine work priorities
review inspection reports
interpret policies, directives, or procedures for subordinates
make entries on maintenance data collection record forms (AFTO Form 349)
indorse APRs
establish performance standards for subordinates
assign personnel to duty positions
schedule leaves or passes
initiate TO or SAC CEM changes

In view of the fact that there are nearly four times as many 3- and 5-skill level airmen as 7-skill level personnel, the fact that the latter perform few maintenance tasks may be to the career ladder's advantage, since supervisors should then be more or less free to supervise and guide their less experienced subordinates. But, note that of the tasks listed above, over half involve administrative activities that keep 7-skill level personnel from being personally involved with subordinates (e.g., make entries on various forms, inventory equipment, write correspondence, etc). This finding suggests the ability of 7-skill level personnel to supervise less experienced career ladder members may be improved by reducing their administrative workload.

In summary, 3- and 5-skill level airmen work on maintenance teams and account for nearly all of the maintenance work done in the career ladder while 7-skill level personnel generally supervise 3- and 5-skill level activities and perform little maintenance themselves. This situation probably permits 7-skill level personnel to spend much of their time guiding and assisting less experienced career ladder members but could possibly be improved by reducing the administrative workload 7-skill level personnel are tasked with.

TABLE 7

DISTRIBUTION OF DAFSC PERSONNEL ACROSS JOB GROUPS
(NUMBER RESPONDING)

JOB GROUPS	44530G	44550G	44570G
MAINTENANCE TEAMS (GRP010)	44	196	22
POWER, REFRIGERATION, AND ELECTRIC (PREL) SHOP PERSONNEL (GRP071)	10	32	4
TRAINING PERSONNEL (GRP060)	1	6	0
SUPERVISORS (GRP037)	0	12	57
JOB CONTROLLERS (GRP083)	0	12	4
TOTAL	55	258	87

TABLE 8

TASKS WHICH BEST DISTINGUISH 3- AND 5-SKILL LEVEL VERSUS 7-SKILL LEVEL PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	3- AND 5-SKILL LEVEL	7-SKILL LEVEL	DIFFERENCE
ADJUST ALARM CONTROL PANEL CONTROLS	59	18	+41
ISOLATE MALFUNCTIONS IN DIESEL ENGINE COOLING SYSTEM	57	16	+41
ISOLATE MALFUNCTIONS IN BRINE CHILLER CONTROL PANELS	60	19	+41
PERFORM ECS SHUTDOWNS AND CHECKOUTS	62	21	+41
ISOLATE MALFUNCTIONS IN ALARM CONTROL PANEL CONTROLS	58	17	+41
ADJUST ECS PNEUMATIC ELECTRICAL SWITCHES	62	21	+41
ADJUST ECS THERMOSTATS	62	21	+41
OPERATE DIESEL ENGINE ELECTRICAL UNITS	57	17	+40
ISOLATE MALFUNCTIONS IN DIESEL ENGINE GENERATOR CONTROL PANELS	55	15	+40
ISOLATE MALFUNCTIONS IN DIESEL ENGINE LUBE OIL SYSTEMS	56	16	+40
PLAN WORK ASSIGNMENTS	13	55	-42
COMPILE INFORMATION FOR REPORTS OR STAFF STUDIES	5	46	-41
INSPECT WORK AREAS OR EQUIPMENT OTHER THAN PROTECTIVE EQUIPMENT	22	62	-40
MAINTAIN BOARDS, GRAPHS, OR CHARTS	15	55	-40
DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	11	49	-38
DIRECT MAINTENANCE OR UTILIZATION OF EQUIPMENT, SUPPLIES, OR WORKSPACE	10	48	-38
MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	12	49	-37
ASSIGN SPONSORS FOR NEWLY ASSIGNED PERSONNEL	6	40	-34
EVALUATE INSPECTION REPORTS OR PROCEDURES	6	40	-34

COMPARISON OF SURVEY DATA TO AFR 39-1

SPECIALTY DESCRIPTIONS

Using the preceding DAFSC analysis as a basis for comparison, the AFR 39-1 missile facilities specialty descriptions (dated 31 Oct 81) were evaluated for their coverage of Minuteman system tasks. Paragraph 2a of the description for AFSCs 44510/44530/44550 lists the maintenance tasks that apply to both Titan and Minuteman systems. Examination of those tasks that apply to Minuteman indicated that the description accurately reflects Minuteman missile facilities maintenance jobs. By contrast, the description for AFSC 44570 lists several maintenance-related tasks in paragraph 2b which 7-skill level personnel generally do not perform. Otherwise, the description adequately covers 7-skill level duties.

ANALYSIS OF EXPERIENCE (TAFMS) GROUPS

While analysis of a career ladder by DAFSC permits evaluation of AFR 39-1 specialty descriptions, analysis by Total Active Federal Military Service (TAFMS) groups provides a basis for evaluation of career ladder training programs. In addition, such analysis shows how jobs, and people's feelings about their jobs, change over time.

In this study, the pattern of jobs TAFMS groups perform is typical of most career ladders: as personnel move through succeeding enlistments, they spend less time on maintenance duties and more time on supervisory duties (see Table 9). For example, first-term personnel spend the majority of their time maintaining power production and environmental control systems, while personnel in their second enlistment divided their time equally between maintenance activities, on one hand, and training and administrative activities on the other. By contrast, career personnel spend nearly all of their time orgainizing, planning, inspecting, evaluating, training others, and performing administrative functions, while spending almost no time at all on maintenance activities.

Job Satisfaction

Less typical of other career ladders, the TAFMS job satisfaction data suggest 445X0G personnel are somewhat happier with their jobs and more likely to reenlist than their counterparts in related Air Force specialties (see Table 10). Note the strikingly higher reenlistment intent of second-enlistment personnel relative to their comparison group. This trend suggests that the career ladder may have less problem retaining experienced personnel than other related specialties.

First-Enlistment Personnel

Although the preceding comments shed light on the career ladder as a whole, Air Force training managers are particularly interested in first-enlistment personnel. In this study, eighty-one percent of first-term personnel work on maintenance teams, while only 14 percent work in PREL shops (see Figure 2). The principal difference between maintenance team and PREL shop members is the former maintain systems operating at an alert missile site, while the latter remain in on-base maintenance shops and work mainly on missile transportation vehicles.

Tables 11, 12 and 13 illustrate the nature of first-termer jobs. Table 11 lists the maintenance tasks highest in percent performing for first-term personnel. Note that more first-termers perform environmental control system tasks than perform power production tasks. Also, the tasks listed involve adjustment activities more often than either inspection, troubleshooting, or repair activities. Thus, somewhat smaller numbers of first-termers perform inspection, troubleshooting, and repair tasks than perform adjustment tasks. As shown in Table 12, first-termers use 38 pieces of equipment in large enough numbers (at least 30 percent using) to warrant consideration for inclusion in a training program. These pieces of equipment range in complexity from simple tools such as torque wrenches and electric drills to more complicated instruments like multimeters and portable protective relay test sets. In addition, Table 13 shows that fairly large numbers of personnel use heavy pipe wrenches and tool kits many times a week, suggesting that first-termers should meet some minimum strength and stamina standards established by career ladder managers.

TABLE 9

RELATIVE PERCENT TIME SPENT ON DUTIES BY TAFMS GROUPS

DUTIES		MONTHS TAFMS 1-48 (N=296)	49-96 (N=60)	97+ (N=101)
A	ORGANIZING AND PLANNING	2	9	16
B	DIRECTING AND IMPLEMENTING	3	9	19
C	INSPECTING AND EVALUATING	2	7	21
D	TRAINING	3	12	11
E	PERFORMING ADMINISTRATIVE FUNCTIONS	8	18	18
F	MAINTAINING SUPPORT VEHICLES	9	8	2
G	MAINTAINING GUIDANCE AND CONTROL LIQUID COOLING SYSTEMS	2	2	1
H	MAINTAINING LAUNCH FACILITY (LF) AND LAUNCH CONTROL FACILITY (LCF) POWER GENERATOR SYSTEMS	25	12	4
	LF AND LCF ENVIRONMENTAL CONTROL SYSTEMS	33	14	6
J	MAINTAINING LF AND LCF POWER DISTRIBUTION SYSTEMS	3	2	0
K	PERFORMING MISCELLANEOUS MISSILE FACILITY MAINTENANCE	8	6	2
L	PERFORMING GENERAL MISSILE FACILITIES FUNCTIONS	3	2	1

TABLE 10

JOB SATISFACTION COMPARISON OF 445X0G PERSONNEL AND 1980 COMPARATIVE SAMPLE*
(PERCENT MEMBERS)

	FIRST ENLISTMENT		SECOND ENLISTMENT		CAREER	
	445X0G	COMP DATA	445X0G	COMP DATA	445X0G	COMP DATA
I FIND MY JOB:						
DULL	17	24	8	17	6	14
SO-SO	20	20	18	22	27	16
INTERESTING	63	56	73	61	67	70
JOB USES MY TALENTS:						
NOT AT ALL OR VERY LITTLE	27	37	18	31	17	24
FAIRLY WELL TO PERFECTLY	72	63	82	69	83	76
JOB USES MY TRAINING:						
NOT AT ALL OR VERY LITTLE	16	30	20	28	23	25
FAIRLY WELL TO PERFECTLY	83	70	80	71	77	75
SENSE OF ACCOMPLISHMENT:						
DISSATISFIED	24	33	23	31	17	27
AMBIVALENT	18	15	12	11	16	11
SATISFIED	58	51	65	57	67	62
PLAN TO REENLIST:						
I WILL RETIRE	0	0	8	0	22	0
NO OR PROBABLY NO	61	66	22	51	7	32
YES OR PROBABLY YES	38	33	70	48	71	67

* MISSION EQUIPMENT MAINTENANCE AFSCs: 30XXX, 31XXX, 32XXX, 34XXX, 36XXX, 40XXX, 43XXX, 44XXX, 46XXX

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY FIRST-TERM PERSONNEL
IN ORDER OF PERCENT PERFORMING

TASK	PERCENT PERFORMING
PERFORM ECS STARTUPS AND CHECKOUTS	68
ADJUST ECS FLOW ALARMS	67
PERFORM ECS SHUTDOWNS AND CHECKOUTS	67
LEAK CHECK REFRIGERANT SUBSYSTEMS	67
ADJUST ECS THERMOSTATS	67
ADJUST BRINE CHILLER CONTROL PANEL CONTROLS	67
ADJUST ECS PNEUMATIC ELECTRICAL SWITCHES	67
CHARGE REFRIGERANT SUBSYSTEMS WITH REFRIGERANT OR OIL	66
ADJUST AIR CONDITIONING SUBSYSTEM CONTROLS	66
ISOLATE MALFUNCTIONS IN AIR CONDITIONING SUBSYSTEMS	66
ADJUST ECS RESTRICTORS	66
ADJUST BRINE CHILLER CONTROL SUBSYSTEMS	65
ADJUST ECS ELECTRICAL SWITCHES	65
ADJUST INSTRUMENT AIR SYSTEM COMPONENTS	65
REMOVE OR REPLACE CIRCUIT BREAKERS	65
REMOVE OR REPLACE DIESEL ENGINE HARDWARE, SUCH AS [illegible]	64
[illegible] ENGINE SAFETY AND [illegible]	64
ADJUST DIESEL ENGINE SAFETY AND ALARM DEVICES	64
ADJUST DIESEL ENGINE LUBE OIL SYSTEM COMPONENTS	63
ADJUST DIESEL ENGINE FUEL OIL SYSTEM COMPONENTS	62
ISOLATE MALFUNCTIONS IN DIESEL ENGINE SAFETY AND ALARM DEVICES	62
ADJUST DIESEL ENGINE COOLING SYSTEM COMPONENTS	62
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE BATTERY CHARGERS	61
ADJUST DIESEL ENGINE CRANKING AND ALARM PANEL COMPONENTS	61
ISOLATE MALFUNCTIONS IN DIESEL ENGINE FUEL OIL SYSTEMS	61
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE STARTING AND STOPPING DEVICES	61
OPERATE DIESEL ENGINE ELECTRICAL UNITS	61
ISOLATE MALFUNCTIONS IN DIESEL ENGINE COOLING SYSTEMS	61

TABLE 12

EQUIPMENT OPERATED BY 30 PERCENT OR MORE OF FIRST-TERM PERSONNEL

EQUIPMENT	PERCENT USING
MULTIMETERS	86
CALIBRATED THERMOMETERS	82
AMMETERS	81
TEMPERATURE CONTROL TEST SETS	81
TORQUE WRENCHES	80
MANIFOLD GAUGE SETS	79
FREQUENCY METERS	79
ELECTRIC DRILLS	78
HYDROMETERS	77
VOLTMETERS	76
REFRIGERANT CHARGING CYLINDERS	75
ELECTRONIC LEAK DETECTORS	75
SOLDERING IRONS	74
JOHNSON CONTROL KITS	72
IMMERSION HEATERS	72
ELECTRONIC VOLTMETERS	69
MANOMETERS	69
CRIMPING TOOLS	60
FLOW METERS	59
BATTERY CHARGERS	58
VACUUM PUMPS	57
OVERHEAD HOISTS	56
BRINE BALANCE KITS	53
NITROGEN CYLINDERS	53
FUEL INJECTOR LINE NUT WRENCHES	52
VIBROGROUNDS	51
AIR COMPRESSORS	51
THICKNESS GAUGES	50
PORTABLE PROTECTIVE RELAY TEST SETS	44
VELOMETERS	43
EMERGENCY SUMP PUMP KITS	40
MICRON GAUGES	35
FREQUENCY COUNTERS	34
VARIABLE TRANSFORMERS	33
CALIBRATED GROUP TEST SETS	33
GAS WELDER AND CUTTING EQUIPMENT	30

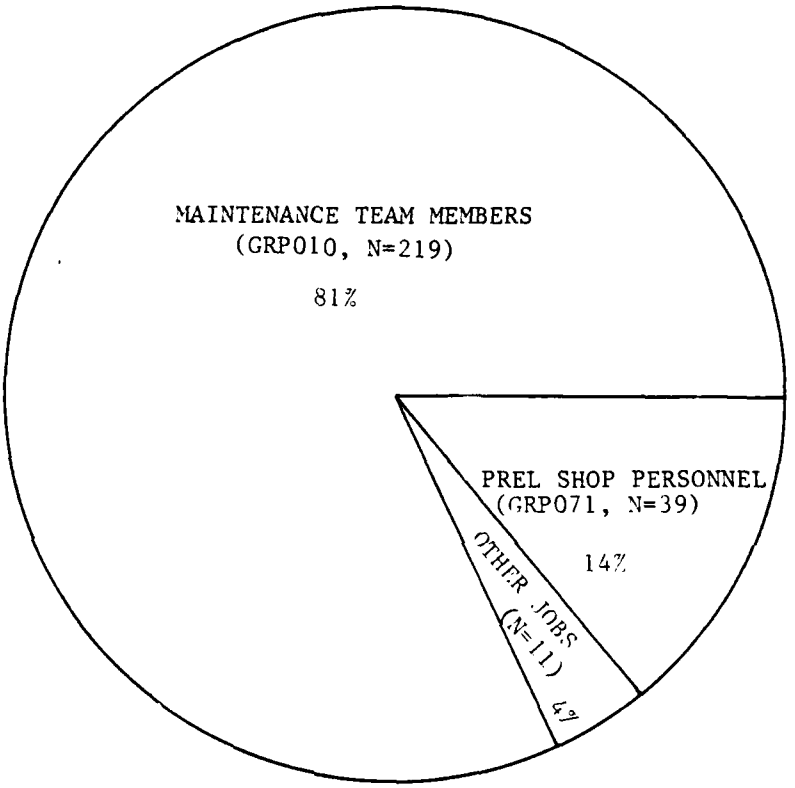
TABLE 13

HOW OFTEN FIRST-TERMERS LIFT OR USE SELECTED EQUIPMENT
(PERCENT MEMBERS PERFORMING)

LIFT OR USE	PIPE WRENCHES	RELAY TEST SETS	TOOL KITS
ONCE A MONTH OR LESS	40	83	18
TWICE A MONTH	18	8	4
FEW TIMES A WEEK	31	7	25
SEVERAL TIMES A DAY	11	2	53

FIGURE 2

JOB GROUPS OF FIRST-TERM PERSONNEL



TRAINING ANALYSIS

Occupational survey data are one of many sources of information that can assist in the development of a training program for first-termers. In addition to the TAFMS analysis just completed, training developers may use training emphasis and task difficulty ratings to evaluate the Specialty Training Standard (STS) and the entry-level Plan of Instruction (POI) for the career ladder. To permit such an evaluation, technical school personnel from the Chanute Technical Training Center matched inventory tasks to appropriate sections of the STS and POI for course 3ABR445X0G. A complete computer listing reflecting training emphasis and task difficulty ratings, percent members performing, and the STS and POI matchings, has been forwarded to the technical school for their use in any further detailed review of training documents. A summary of that information is described below. In addition, subsequent sections consider implications of the training analysis for standard versus modernized facility personnel, and maintenance team versus PREL shop training.

Training Emphasis

Although all maintenance team tasks (power production and environmental control system maintenance) had above average training emphasis ratings, environmental control system maintenance tasks were rated even higher than power production system maintenance tasks (see Table 14). This finding if consistent with the foregoing first-enlistment analysis. By contrast, all PREL shop tasks (support vehicle and guidance and control liquid cooling systems maintenance) had below average training emphasis ratings, suggesting these tasks may not require formal training. However, this finding should be considered in light of the job satisfaction data for PREL shop personnel who appeared relatively dissatisfied with the use of their formal training.

Task Difficulty

The picture presented by task difficulty data differs considerably from that of training emphasis ratings. Nearly 50 percent of PREL shop tasks (support vehicle and guidance and control liquid cooling system maintenance) were above average in difficulty, and just over 50 percent of maintenance team tasks (power production and environmental control systems maintenance) were above average (see Table 16). Thus, PREL shop tasks are proportionately about as difficult as maintenance team tasks.

Specialty Training Standard (STS)

A comprehensive review of STS 445X0G, dated 1 October 1981, was made by comparing the STS to survey data. STS paragraphs containing general information or subject matter knowledge proficiency requirements were not evaluated. In general, no serious problems were found with the STS. Only 28 of 262 tasks having above average training emphasis ratings were not

matched to the STS. However, several of these unmatched tasks were performed by more than 30 percent of first-term personnel and probably should be included in a future revision of the STS (see Table 17). On the other hand, most STS items were supported by referenced tasks. Among the exceptions were STS items 19A (21), 19C, 19G, 19H, and their counterparts in STS paragraph 20. These items deal with repairing glow plugs and controls, guidance and control systems, ventilation safety systems, and shock attenuation systems. Subject-matter experts should review these items for continued inclusion in the STS.

Plan of Instruction (POI)

Eighty-nine tasks rated above average in training emphasis were not matched to criterion objectives in the POI. Of these tasks, 88 had substantial difficulty ratings and were performed by at least 30 percent of personnel in their first two years of service. Most of these unmatched tasks are power production and environmental control systems tasks (see Tables 18 and 19). Most of the power production system tasks involve equipment not presently available to the technical training school; consequently, the basic course is unable to train students on those tasks (although some of the tasks were also not referenced in the STS). Similarly, several of the environmental control system tasks also involve equipment not available to the technical school. Strategic Air Command, however, prefers that team training branches provide training on about half of the unmatched tasks. These tasks generally are those that involve removing or replacing equipment.

Modernized and Standard Facility Tracks in the Basic Course

At the time of this survey, Wings 1 through 5 personnel worked with automatic switching units and oxygen regeneration units (standard facilities), while Wing 1, Squadron 20, and Wing 6 personnel worked with power control centers, master control panels, and monitor panels (modernized facilities) (see Table 20). Since this difference existed because modernized installations were fitted with newer equipment than standard installations, updating of standard facilities could make the installations more similar. Nevertheless, as long as the difference between standard and modernized installations continues, standard facility personnel may need training on some different systems than modernized facility personnel. Since the training emphasis and task difficulty data for the distinguishing tasks generally are above average (see Table 21), training on these tasks probably should be provided in the basic resident course. If this approach is taken, then the basic course may need two tracks within it--a standard facility track and a modernized facility track. An alternative solution would be to delete all training on the distinguishing tasks from the basic course and allow each installation's team training branch to train incoming specialists on the systems in use at that facility.

Separate Training For Maintenance Team Versus PREL Shop Personnel

Throughout this report, reference has been made to the fact that PREL shop personnel are dissatisfied with their training. As discussed under SPECIALTY JOBS, one reason for this dissatisfaction may be that the basic technical course focuses on maintenance team tasks while providing little training on PREL shop tasks. Of course, this strategy is appropriate for the basic course since, as seen earlier, 81 percent of all first-termers work on maintenance teams, and distinctive PREL shop tasks are all below average in training emphasis while maintenance team tasks are all above average. To further illustrate this point, Tables 21 and 22 list those 45 tasks highest in percent of first-termer members of maintenance teams and PREL shop groups performing, respectively, and shows the training emphasis rating for each task. Note that the two tables contain no common tasks and all of the training emphasis ratings in Table 21 are above average, while all those in Table 22 are below average. Although the basic course is clearly justified in omitting training on PREL shop tasks, the problem of PREL shop members' dissatisfaction with their training remains.

One possible solution to the PREL shop problem just described may be to provide separate training for career ladder members who will be assigned to PREL shops. Of course, this strategy would require identifying ahead of time which career ladder members will be assigned to maintenance teams versus PREL shops. One way to accomplish such identification would involve shredding, or otherwise splitting, the three-skill level of the specialty, but this approach could restrict the Air Force's flexibility in filling some unprogrammed vacancies within the career ladder. An alternative solution might be to have all students complete a common missile facilities principles course and then, contingent upon receiving their assignments, enter a follow-on course specializing in either maintenance team or PREL shop tasks. This follow-on training could be provided by either the technical training school or the receiving missile wings. Since the basis for the missile wings to provide such follow-on training for maintenance teams already exists in the team training branches, it would only be necessary to expand the curriculum of the team training branches and to create analogous PREL shop training branches. In any case, career ladder managers should explore the various options available for better meeting the training needs of PREL shop personnel.

TABLE 14

TASKS HIGHEST IN TRAINING EMPHASIS

TASKS	TRAINING EMPHASIS**	PERCENT FIRST ENL PERFORMING
ADJUST ECS FLOW ALARMS	6.9	67
*VERIFY MINUTEMAN POWER PROCESSOR (MPP) FAILURE USING SITE VERIFICATION BOXES (SVB)	6.8	47
ISOLATE MALFUNCTIONS IN AIR CONDITIONING SUBSYSTEMS	6.8	66
ISOLATE MALFUNCTIONS IN BRINE CHILLER CONTROL PANELS	6.8	65
ISOLATE MALFUNCTIONS IN REFRIGERANT SUBSYSTEMS	6.8	62
PERFORM ECS SHUTDOWNS AND CHECKOUTS	6.8	67
*ISOLATE MALFUNCTIONS IN MPP BATTERY CHARGER COMPONENTS	6.7	49
ADJUST ECS PNUEMATIC ELECTRICAL SWITCHES	6.7	67
ADJUST VENTILATION SUBSYSTEM COMPONENTS AND CONTROLS	6.7	64
ISOLATE MALFUNCTIONS IN VENTILATION SUBSYSTEMS	6.7	60
PERFORM ECS STARTUPS AND CHECKOUTS	6.7	68
ISOLATE MALFUNCTIONS IN ALARM CONTROL PANEL CONTROLS	6.7	63
PERFORM OPERATIONAL CHECKOUTS OF BRINE CHILLER CONTROL SUBSYSTEMS	6.7	62
ADJUST ECS RESTRICTORS	6.6	66
LEAK CHECK REFRIGERANT SUBSYSTEMS	6.6	67
ADJUST ALARM CONTROL PANEL CONTROLS	6.6	64
ADJUST FAULT ALARM CONTROL PANEL CONTROLS	6.6	56
ADJUST REFRIGERANT SUBSYSTEM COMPONENTS	6.6	64
ADJUST BRINE CHILLER CONTROL PANEL CONTROLS	6.5	67
ADJUST ECS THERMOSTATS	6.5	67
ISOLATE MALFUNCTIONS IN BRINE SUBSYSTEMS	6.5	64
*ISOLATE MALFUNCTIONS IN DIESEL ENGINE SAFETY AND ALARM DEVICES	6.5	62
ADJUST ECS ELECTRICAL SWITCHES	6.5	65
ADJUST EMERGENCY AIR-CONDITIONING SUBSYSTEM COMPONENTS	6.5	64
ADJUST INSTRUMENT AIR SYSTEM COMPONENTS	6.5	65

* POWER PRODUCTION SYSTEM MAINTENANCE TASKS. ALL OTHERS ARE ENVIRONMENTAL CONTROL SYSTEM MAINTENANCE TASKS.

** HIGH TRAINING EMPHASIS EQUALS 5.2 AND ABOVE

TABLE 15

TASKS HIGHEST IN DIFFICULTY

PREL SHOP TASKS

TASKS	TASK DIFFICULTY*	PERCENT FIRST ENL PERFORMING	TNG EMP**
ISOLATE MALFUNCTIONS IN MISSILE TRANSPORTER (MT) SEMITRAILER ECSs	7.0	3	2.0
ISOLATE MALFUNCTIONS IN TRANSPORTER ERECTOR (TE) EMPLACEMENT CONTROL PANELS	6.9	14	2.3
ISOLATE MALFUNCTIONS IN TE ECSs	6.9	13	2.3
ISOLATE MALFUNCTIONS IN PAYLOAD TRANSPORTERS (PT) ECSs	6.8	8	2.4
ADJUST TE ECS COMPONENTS	6.8	13	2.5
ADJUST TE EMPLACEMENT CONTROL PANEL COMPONENTS	6.7	14	2.1
ISOLATE MALFUNCTIONS IN PT APUs	6.6	9	2.4
ISOLATE MALFUNCTIONS IN MT APUs	6.6	4	2.1
ISOLATE MALFUNCTIONS IN TE EMPLACEMENT ELECTRICAL SYSTEMS	6.6	13	2.3
ISOLATE MALFUNCTIONS IN RV/G AND C VAN ELECTRICAL HOISTS	6.6	11	2.1
ADJUST TE SEMITRAILER HOIST COMPONENTS	6.6	9	2.0
ADJUST TE EMPLACEMENT ELECTRICAL SYSTEM COMPONENTS	6.4	12	2.1
ISOLATE MALFUNCTIONS IN C310B COMPUTER COOLING SYSTEMS	6.4	9	2.0
ISOLATE MALFUNCTIONS IN PT ELECTRICAL HOISTS	6.3	9	2.4
ISOLATE MALFUNCTIONS IN TE SEMITRAILER ELECTRICAL HOISTS	6.3	9	2.2

MAINTENANCE TEAM TASKS

ISOLATE MALFUNCTIONS IN AIR CONDITIONING SUBSYSTEMS	7.0	66	6.8
ISOLATE MALFUNCTIONS IN BRINE CHILLER CONTROL PANELS	7.0	65	6.8
ISOLATE MALFUNCTIONS IN AUTOMATIC SWITCHING UNITS (ASUs)	7.0	56	6.0
ISOLATE MALFUNCTIONS IN MPP BATTERY CHARGER COMPONENTS	6.9	49	6.7
REMOVE AND REPLACE ASUs	6.9	16	3.3
REMOVE OR REPLACE BRINE CHILLERS	6.9	47	5.1
ISOLATE MALFUNCTIONS IN ALARM CONTROL PANEL CONTROLS	6.9	63	6.7
REMOVE OR REPLACE DIESEL ENGINE GENERATOR SETS	6.8	41	4.1
ISOLATE MALFUNCTIONS IN DIESEL ENGINE EXCITERS	6.8	31	4.1
PERFORM AIR FLOW BALANCING OF VENTILATION SYSTEMS	6.6	61	6.2
ISOLATE MALFUNCTIONS IN REFRIGERANT SUBSYSTEMS	6.6	62	6.8
ISOLATE MALFUNCTIONS IN DIESEL ENGINE GENERATORS	6.6	45	4.9
ISOLATE MALFUNCTIONS IN POWER CONTROL CENTERS (PCCs)	6.5	23	3.4
ISOLATE MALFUNCTIONS IN MASTER CONTROL PANELS	6.4	36	4.8
ISOLATE MALFUNCTIONS IN FAULT ALARM CONTROL PANELS	6.4	56	6.3
ADJUST ASU COMPONENTS	6.3	53	4.8

* AVERAGE DIFFICULTY EQUALS 5.0

** HIGH TRAINING EMPHASIS EQUALS 5.2 AND ABOVE

TABLE 16

TASKS NOT MATCHED TO STS

TASKS	TRAINING EMPHASIS**	PERCENT FIRST ENL PERFORMING	TASK DIFFICULTY*
ADJUST ENVIRONMENTAL CONTROL SYSTEM (ECS) ELECTRICAL SWITCHES	6.5	65	5.2
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE BATTERY CHARGERS	6.3	62	4.8
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE SAFETY AND ALARM DEVICES	6.2	64	4.9
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE FUEL OIL SYSTEMS	6.0	59	3.9
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE STARTING AND STOPPING DEVICES	6.0	61	4.7
MAKE ENTRIES ON MAINTENANCE DATA COLLECTION RECORD FORMS (AFTO FORM 349)	5.9	53	4.0
PRESSURE CHECK REFRIGERANT SUBSYSTEMS	5.7	47	5.0
ADJUST DIESEL ENGINE CRANKING AND ALARM PANEL COMPONENTS	5.6	62	5.4
MAKE ENTRIES ON ISSUE/TURN IN REQUEST FORMS (AF FORM 2005)	5.6	41	3.2
MAKE ENTRIES ON REPARABLE ITEM PROCESSING TAG FORMS (AFTO FORM 350)	5.4	50	3.7
MAKE ENTRIES ON DANGER FORMS (AF FORM 1492)	5.3	61	2.7
MAKE ENTRIES ON ICBM MAINTENANCE DISPATCH RECORD FORMS (SAC FORM 529)	5.3	34	3.7
PERFORM OPERATIONAL CHECKOUTS OF AUTOMATIC SWITCHING UNITS (ASUs)	5.3	49	4.7
PERFORM PERIODIC INSPECTIONS OF DIESEL ENGINE CRANKING AND ALARM PANELS	5.1	43	4.5
PERFORM OPERATIONAL CHECKOUTS OF SELF-CONTAINED BREATHING APPARATUSES	4.9	38	4.2
MAINTAIN HAND TOOLS OR TOOL BOXES	4.8	71	2.0
MAINTAIN DIESEL RUN LOG FORMS (SAC FORM 258)	4.6	30	3.7
MAKE ENTRIES ON USAF HAZARD REPORT FORMS (AF FORM 457)	4.6	32	2.9
PERFORM PERIODIC INSPECTIONS OF MANUAL TRANSFER PANELS	4.3	27	4.1
REMOVE OR REPLACE MANUAL TRANSFER PANEL COMPONENTS	3.9	34	4.7
MAKE ENTRIES ON BATTERY PERIODIC INSPECTION RECORD FORMS (AFTO FORM 430)	3.8	31	3.5
MAINTAIN MISSILE COMPLEX AREA GROUNDS	3.3	31	1.7

* AVERAGE DIFFICULTY EQUALS 5.0

** HIGH TRAINING EMPHASIS EQUALS 5.2 AND ABOVE

TABLE 17

POWER PRODUCTION TASKS NOT MATCHED TO POI

TASKS	TRAINING EMPHASIS**	PERCENT FIRST ENL PERFORMING	TASK DIFFICULTY***
VERIFY MINUTEMAN POWER PROCESSOR (MPP) FAILURE USING SITE VERIFICATION BOXES (SVB)	6.9	47	6.1
ISOLATE MALFUNCTIONS IN MPP BATTERY CHARGER COMPONENTS	6.7	49	6.9
ISOLATE MALFUNCTIONS IN DIESEL ENGINE SAFETY AND ALARM DEVICES	6.5	62	5.9
REMOVE OR REPLACE MPPs	6.4	48	5.0
ISOLATE MALFUNCTIONS IN DIESEL ENGINE BATTERY CHARGERS	6.3	56	5.7
ADJUST DIESEL ENGINE SAFETY AND ALARM DEVICE COMPONENTS	6.3	64	5.4
ISOLATE MALFUNCTIONS IN DIESEL ENGINE GENERATOR CONTROL PANELS	6.3	60	6.2
*PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE BATTERY CHARGERS	6.3	62	4.8
*PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE SAFETY AND ALARM DEVICES	6.2	64	4.9
REMOVE OR REPLACE DIESEL ENGINE SAFETY AND ALARM DEVICES	6.2	60	4.6
REMOVE OR REPLACE DIESEL ENGINE LUBE OIL SYSTEM	6.1	59	3.8
[illegible]ATOR SYSTEMS WITH OIL, COOLANT, [illegible] WATER	6.1	59	3.3
ISOLATE MALFUNCTIONS IN DIESEL ENGINE STARTING AND STOPPING DEVICES	6.1	60	5.8
REMOVE OR REPLACE DIESEL ENGINE FUEL OIL SYSTEM COMPONENTS	6.1	60	4.5
REMOVE OR REPLACE MPP BATTERY CHARGER COMPONENTS	6.1	42	4.9
ADJUST DIESEL ENGINE COOLING SYSTEM COMPONENTS	6.0	62	4.3
*PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE FUEL OIL SYSTEMS	6.0	59	3.9
*PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE STARTING AND STOPPING DEVICES	6.0	61	4.7
REMOVE OR REPLACE DIESEL ENGINE COOLING SYSTEM COMPONENTS	6.0	60	4.3
ISOLATE MALFUNCTIONS IN AUTOMATIC SWITCHING UNITS	6.0	56	7.0
REMOVE OR REPLACE DIESEL ENGINE SAFETY AND ALARM DEVICE COMPONENTS	6.0	59	4.7
ADJUST DIESEL ENGINE GENERATOR COMPONENTS	6.0	53	5.5
ADJUST DIESEL ENGINE GOVERNOR COMPONENTS	6.0	60	5.7
ADJUST DIESEL ENGINE STARTING AND STOPPING DEVICE COMPONENTS	6.0	60	5.2
ISOLATE MALFUNCTIONS IN DIESEL ENGINE FUEL OIL SYSTEMS	6.0	62	5.2
ISOLATE MALFUNCTIONS IN DIESEL ENGINE GOVERNORS	6.0	53	6.2
PERFORM PERIODIC INSPECTIONS OF MPPs	6.0	34	4.6

TABLE 17 (CONTINUED)

POWER PRODUCTION TASKS NOT MATCHED TO POI

TASKS	TRAINING EMPHASIS**	PERCENT FIRST ENL PERFORMING	TASK DIFFICULTY***
REMOVE OR REPLACE DIESEL ENGINE BATTERY CHARGER COMPONENTS	6.0	49	4.9
REMOVE OR REPLACE DIESEL ENGINE STARTING AND STOPPING DEVICE COMPONENTS	6.0	56	4.4
OPERATE DIESEL ENGINE ELECTRICAL UNITS	5.9	61	3.9
REMOVE OR REPLACE DIESEL ENGINE BATTERY CHARGERS	5.9	59	4.8
REMOVE OR REPLACE DIESEL ENGINE STARTING AND STOPPING DEVICES	5.9	58	4.4
ADJUST DIESEL ENGINE GENERATOR CONTROL PANEL COMPONENTS	5.8	59	5.5
ISOLATE MALFUNCTIONS IN DIESEL ENGINE COOLING SYSTEMS	5.8	61	4.5
ISOLATE MALFUNCTIONS IN CIRCUIT BREAKERS	5.7	58	4.2

* ALSO NOT MATCHED TO STS

** HIGH TRAINING EMPHASIS EQUALS 5.2 AND ABOVE

*** AVERAGE DIFFICULTY EQUALS 5.0

TABLE 18

ENVIRONMENTAL CONTROL TASKS NOT MATCHED TO POI

TASKS	TRAINING EMPHASIS**	PERCENT FIRST ENL PERFORMING	TASK DIFFICULTY***
ISOLATE MALFUNCTIONS IN ALARM CONTROL PANEL CONTROLS	6.7	63	6.9
AJDUST ALARM CONTROL PANEL CONTROLS	6.6	64	5.8
ADJUST FAULT ALARM CONTROL PANEL CONTROLS	6.6	56	5.8
*ADJUST ECS ELECTRICAL SWITCHES	6.5	65	5.2
PERFORM OPERATIONAL CHECKOUTS OF ALARM CONTROL PANEL AND CONTROLS	6.5	59	5.2
ISOLATE MALFUNCTIONS IN FAULT ALARM CONTROL PANELS	6.3	56	6.4
PERFORM OPERATIONAL CHECKOUTS OF VENTILATION SUBSYSTEMS AND CONTROLS	6.2	57	4.8
REMOVE OR REPLACE AIR CONDITIONING SUBSYSTEM COMPONENTS	6.1	61	5.5
REMOVE OR REPLACE BRINE CHILLER CONTROL PANEL CONTROLS	6.0	64	5.3
REMOVE OR REPLACE ENVIRONMENTAL CONTROL MAKEUP AIR SYSTEM COMPONENTS	6.0	54	4.6
REMOVE OR REPLACE LAUNCH TUBE HEATING SUBSYSTEM COMPONENTS	6.0	58	5.0
REMOVE OR REPLACE BRINE SUBSYSTEM COMPONENTS	6.0	59	5.1
REMOVE OR REPLACE FAULT ALARM CONTROL PANEL CONTROLS	6.0	52	5.1
REMOVE OR REPLACE [illegible] SYSTEM COMPONENTS	6.0	62	4.8
REMOVE OR REPLACE ALARM CONTROL PANEL CONTROLS	5.9	57	5.2
REMOVE OR REPLACE BRINE CHILLER COMPONENTS	5.9	64	5.7
PERFORM OPERATIONAL CHECKOUTS OF FAULT ALARM CONTROL PANELS AND CONTROLS	5.8	57	5.1
REMOVE OR REPLACE EMERGENCY AIR CONDITIONING SUBSYSTEM COMPONENTS OR CONTROLS	5.8	56	5.3
REMOVE OR REPLACE HEATING SUBSYSTEM COMPONENTS	5.8	55	5.2
REMOVE OR REPLACE HEATING SYSTEM COMPONENTS	5.8	55	5.0
*PRESSURE CHECK REFRIGERANT SUBSYSTEMS	5.7	47	5.0
REMOVE OR REPLACE VENTILATION SUBSYSTEM COMPONENTS AND CONTROLS	5.7	49	5.0
PERFORM PERIODIC INSPECTIONS OF ALARM CONTROL PANEL AND CONTROLS	5.6	40	4.9
PERFORM PERIODIC INSPECTIONS OF FAULT ALARM CONTROL PANEL AND CONTROLS	5.5	37	4.9
PERFORM OPERATIONAL CHECKOUTS OF OXYGEN REGENERATION UNITS	5.5	40	4.5
REMOVE OR REPLACE REFRIGERANT SUBSYSTEM COMPONENTS	5.5	51	5.9
ISOLATE MALFUNCTIONS IN BRINE TO AIR HEAT EXCHANGER SUBSYSTEMS	5.4	51	6.0
ADJUST BRINE TO AIR HEAT EXCHANGER SYSTEM CONTROLS	5.3	48	5.3

* ALSO NOT MATCHED TO STS

** HIGH TRAINING EMPHASIS EQUALS 5.2 AND ABOVE

*** AVERAGE DIFFICULTY EQUALS 5.0

TABLE 19

TASKS WHICH BEST DISTINGUISH MODERNIZED FACILITY PERSONNEL FROM STANDARD FACILITY PERSONNEL
(PERCENT PERFORMING)

TASKS	MODERNIZED FACILITIES	STANDARD FACILITIES	DIFFERENCE
ADJUST POWER CONTROL CENTER (PCC) COMPONENTS	51	10	+41
ISOLATE MALFUNCTIONS IN PCCs	51	10	+41
REMOVE OR REPLACE PCC COMPONENTS	45	8	+37
PERFORM PERIODIC INSPECTIONS OF PCCs	36	8	+28
ISOLATE MALFUNCTIONS IN MASTER CONTROL PANELS	49	24	+25
REMOVE OR REPLACE MASTER CONTROL PANELS	46	21	+25
ADJUST MASTER CONTROL PANEL CONTROLS	47	24	+23
PERFORM OPERATIONAL CHECKOUTS OF MASTER CONTROL PANEL AND CONTROLS	44	25	+19
REMOVE OR REPLACE MONITOR PANEL COMPONENTS	26	10	+16
ISOLATE MALFUNCTIONS IN MONITOR PANELS	28	14	+14
PERFORM PERIODIC INSPECTIONS OF MASTER CONTROL PANELS AND CONTROLS	32	21	+11
REMOVE OR REPLACE AUTOMATIC SWITCHING UNIT (ASU) COMPONENTS	15	48	-33
ADJUST ASUs	16	48	-32
ADJUST ASU COMPONENTS	18	50	-32
PERFORM OPERATIONAL CHECKOUTS OF ASUs	16	46	-30
ISOLATE MALFUNCTIONS IN ASUs	23	51	-28
PERFORM OPERATIONAL CHECKOUTS OF OXYGEN REGENERATION UNITS	16	39	-23
PERFORM PERIODIC INSPECTIONS OF OXYGEN REGENERATION UNITS	8	31	-23
PERFORM PERIODIC INSPECTIONS OF ASUs	14	35	-21
REMOVE OR REPLACE OXYGEN REGENERATION UNIT COMPONENTS	5	24	-19

TABLE 20

TRAINING EMPHASIS* AND DIFFICULTY** OF TASKS WHICH BEST DISTINGUISH STANDARD FACILITY AND MODERNIZED FACILITY PERSONNEL

STANDARD FACILITIES

TASKS	TRAINING EMPHASIS	TASK DIFFICULTY
ISOLATE MALFUNCTIONS IN AUTOMATIC SWITCHING UNITS (ASUs)	6.0	7.0
PERFORM OPERATIONAL CHECKS OF OXYGEN REGENERATION UNITS	5.5	4.5
PERFORM OPERATIONAL CHECKS OF ASUs	5.3	4.7
PERFORM PERIODIC INSPECTIONS OF OXYGEN REGENERATION UNITS	5.0	4.1
ADJUST ASU COMPONENTS.	4.8	6.3
PERFORM PERIODIC INSPECTIONS OF ASUs	4.8	5.2
ADJUST ASUs	4.7	6.2
REMOVE OR REPLACE ASU COMPONENTS	4.4	5.4
REMOVE OR REPLACE OXYGEN REGENERATION UNIT COMPONENTS	3.6	4.6

MODERNIZED FACILITIES

TASKS	TRAINING EMPHASIS	TASK DIFFICULTY
ADJUST MASTER CONTROL PANELS	5.0	5.7
PERFORM OPERATIONAL CHECKOUTS OF MASTER CONTROL PANELS AND CONTROLS	4.9	4.9
ISOLATE MALFUNCTIONS IN MASTER CONTROL PANELS	4.8	6.4
PERFORM PERIODIC INSPECTIONS OF MASTER CONTROL PANELS AND CONTROLS	4.4	5.0
REMOVE OR REPLACE MASTER CONTROL PANEL CONTROLS	4.3	5.0
PERFORM PERIODIC INSPECTIONS OF MONITOR PANELS	4.2	4.2
ISOLATE MALFUNCTIONS IN MONITOR PANELS	4.0	5.7
ISOLATE MALFUNCTIONS IN POWER CONTROL CENTERS (PCCs)	3.4	6.5
ADJUST PCC COMPONENTS	3.3	5.9
REMOVE OR REPLACE PCC COMPONENTS	3.3	5.0
REMOVE OR REPLACE MONITOR PANEL COMPONENTS	3.3	4.6

* AVERAGE TRAINING EMPHASIS RATING IS 3.2.
** AVERAGE TASK DIFFICULTY RATING IS 5.0.

TABLE 21

TASKS PERFORMED BY FIRST-TERMERS ON MAINTENANCE TEAMS*
(DESCENDING ORDER OF TRAINING EMPHASIS**)

TASKS	TRAINING EMPHASIS	PERCENT FIRST ENL PERFORMING	TASK DIFFICULTY
ADJUST ECS FLOW ALARMS	6.9	67	6.3
PERFORM ECS SHUTDOWNS AND CHECKOUTS	6.8	67	5.3
ISOLATE MALFUNCTIONS IN AIR CONDITIONING SUBSYSTEMS	6.8	66	7.0
ISOLATE MALFUNCTIONS IN BRINE CHILLER CONTROL PANELS	6.8	65	7.0
PERFORM ECS STARTUPS AND CHECKOUTS	6.7	68	5.2
ADJUST ECS PNEUMATIC ELECTRICAL SWITCHES	6.7	67	5.1
ADJUST REFRIGERANT SUBSYSTEM COMPONENTS AND CONTROLS	6.7	64	5.6
ISOLATE MALFUNCTIONS IN ALARM CONTROL PANEL CONTROLS	6.7	63	6.9
PERFORM OPERATIONAL CHECKOUTS OF BRINE CHILLER CONTROL SUBSYSTEMS	6.7	62	5.0
LEAK CHECK REFRIGERANT SUBSYSTEMS	6.6	67	4.7
ADJUST ECS RESTRICTORS	6.6	66	5.0
ADJUST REFRIGERANT SUBSYSTEM COMPONENTS	6.6	64	5.8
ADJUST AIR CONDITIONING SUBSYSTEM CONTROLS	6.6	66	6.0
ADJUST ECS THERMOSTATS	6.5	67	5.6
ADJUST BRINE CHILLER CONTROL PANEL CONTROLS	6.5	67	5.8
ADJUST AIR CONDITIONING SUBSYSTEM CONTROLS	6.5	66	6.1
CHARGE REFRIGERANT SUBSYSTEMS WITH REFRIGERANT OR OIL	6.5	66	5.2
ADJUST ECS ELECTRICAL SWITCHES	6.5	65	5.2
ADJUST BRINE CHILLER CONTROL SUBSYSTEMS	6.5	65	5.8
ADJUST INSTRUMENT AIR SYSTEM COMPONENTS	6.5	65	5.2
ISOLATE MALFUNCTIONS IN BRINE SUBSYSTEMS	6.5	64	6.2
ADJUST EMERGENCY AIR CONDITIONING SUBSYSTEM COMPONENTS	6.5	64	5.9
ISOLATE MALFUNCTIONS IN DIESEL ENGINE SAFETY AND ALARM DEVICES	6.5	62	5.9
ADJUST LAUNCH TUBE HEATING SUBSYSTEM CONTROLS	6.4	64	5.4
PERFORM OPERATIONAL CHECKOUTS OF AIR CONDITIONING SUBSYSTEMS AND CONTROLS	6.4	64	5.1
SERVICE ECS WITH REFRIGERANT OR OIL	6.4	63	4.8
ISOLATE MALFUNCTIONS IN EMERGENCY AIR CONDITIONING SUBSYSTEMS	6.3	64	6.3
ADJUST DIESEL ENGINE SAFETY AND ALARM DEVICE COMPONENTS	6.3	64	5.4
ISOLATE MALFUNCTIONS IN ENVIRONMENTAL CONTROL MAKEUP AIR SYSTEMS	6.3	63	5.5
ISOLATE MALFUNCTIONS IN INSTRUMENT AIR SYSTEMS	6.3	62	5.5
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE BATTERY CHARGERS	6.3	62	4.8
PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE SAFETY AND ALARM DEVICES	6.2	64	4.9

* 45 TASKS HIGHEST IN PERCENT PERFORMING (NOT SHOWN)
** AVERAGE TRAINING EMPHASIS RATING IS 3.2.

TABLE 22

TASKS PERFORMED BY FIRST-TERMERS IN PREL SHOPS*
(DESCENDING ORDER OF TRAINING EMPHASIS**)

TASKS	TRAINING EMPHASIS	PERCENT FIRST ENL PERFORMING	TASK DIFFICULTY
PREPARE BRINE SOLUTIONS	2.7	13	6.4
ADJUST TRANSPORTER ERECTOR (TE) SEMITRAILER ELECTRICAL SYSTEM COMPONENTS	2.5	13	5.2
ADJUST TE ECS COMPONENTS	2.5	13	6.7
ISOLATE MALFUNCTIONS IN BATTERY VAN (B-VAN) HEATING SYSTEMS	2.4	14	4.7
CHARGE SUPPORT VEHICLES OR SUPPORT VEHICLE ECS WITH REFRIGERANT OR OIL	2.4	14	5.1
REMOVE OR REPLACE TE ECS COMPONENTS	2.4	12	6.2
ISOLATE MALFUNCTIONS IN MAINTNANCE EQUIPMENT TRAILER (MET) ELECTRICAL HOISTS	2.3	15	5.5
ADJUST MET ELECTRICAL HOIST COMPONENTS	2.3	15	5.3
ISOLATE MALFUNCTIONS IN B-VAN ELECTRICAL CRANES	2.3	14	5.8
ADJUST MET HEATER COMPONENTS	2.3	15	3.8
ADJUST B-VAN ELECTRICAL CRANE COMPONENTS	2.3	15	5.3
ADJUST MET ELECTRICAL SYSTEM COMPONENTS	2.3	15	4.2
ADJUST MECHANICAL MAINTENANCE VAN (M-VAN) ELECTRICAL CRANE	2.3	14	4.8
ISOLATE MALFUNCTIONS IN M-VAN ELECTRICAN CRANE	2.3	14	5.8
ISOLATE MALFUNCTIONS IN TE EMPLACEMENT CONTROL PANELS	2.3	14	6.9
PERFORM PERIODIC INSPECTIONS OF TE ECSs	2.3	13	4.8
ISOLATE MALFUNCTIONS IN TE ECSs	2.3	13	6.8
ISOLATE MALFUNCTIONS IN ELECTRICAL VAN (E-VAN), M-VAN, OR B-VAN ELECTRICAL SYSTEMS	2.3	13	4.7
PERFORM PRIODIC INSPECTIONS OF TE SEMITRAILER ELECTRICAL SYSTEMS	2.3	13	4.5
ISOLATE MALFUNCTIONS IN TE EMPLACEMENT ELECTRICAL SYSTEMS	2.3	11	5.9
REMOVE OR REPLACE TE EMPLACEMENT CONTROL PANEL COMPONENTS	2.3	13	5.5
REMOVE OR REPLACE TE SEMITRAILER ELECTRICAL SYSTEM COMPONENTS	2.3	12	5.2
PERFORM OPERATIONAL CHECKOUTS OF MET ELECTRICAL SYSTEMS	2.2	16	3.5
PERFORM PERIODIC INSPECTIONS OF MET HEATERS	2.2	15	3.5
PERFORM PERIODIC INSPECTIONS OF MET ELECTRICAL SYSTEMS	2.2	15	3.5
PERFORM OPERATIONAL CHECKOUTS OF B-VAN, E-VAN, OR M-VAN ELECTRICAL SYSTEMS	2.2	16	4.3
PERFORM OPERATIONAL CHECKOUTS OF MET HEATERS	2.2	15	3.4
PERFORM PERIODIC INSPECTIONS OF B-VAN, E-VAN, OR M-VAN ELECTRICAL SYSTEMS	2.2	14	3.9
PERFORM OPERATIONAL CHECKOUTS OF TE ECSs	2.2	14	5.1
PERFORM OPERATIONAL CHECKOUTS OF B-VAN HEATING SYSTEMS	2.2	14	4.0
PERFORM OPERATIONAL CHECKOUTS OF TE EMPLACEMENT CONTROL PANELS	2.2	13	5.4

* 45 TASKS HIGHEST IN PERCENT PERFORMING (NOT SHOWN)
** AVERAGE TRAINING EMPHASIS RATING IS 3.2.

ANALYSIS OF WRITE-IN COMMENTS

Occupational survey booklets include blank pages on which career ladder members may write in additional tasks or make comments about any subject. In this survey, 57 members wrote in tasks or comments. A number of people said they spent much of their time updating the Maintenance Management Information and Control System (MMICS). MMICS is a computerized system for managing four types of data: maintenance schedules, operational schedules of equipment to be maintained, maintenance personnel records, and personnel training records. Ideally, MMICS tracks events as they occur. As a result, individuals who update MMICS must be constantly aware of the status of each maintenance action, piece of equipment, or person to be tracked. Examples of MMICS tasks respondents listed include:

maintain MMICS equipment listings
update and maintain training subsystems
update and maintain modifications subsystems
update and maintain time change and ICBM location inventory
update and maintain event listings discrepancies
update and maintain maintenance dispatch data
retrieve MMICS information
update supply status PO/PA in MMICS
research parts for delayed discrepancies
maintain records of parts ordered
maintain records of parts returned as no longer needed
prepare and maintain a frequently-used item list
keep track of serial-controlled items installed at Launch Facilities and Launch Control Facilities

Personnel who added the MMICS tasks did not come from any one functional group. Some belonged to the maintenance team group, some belonged to the training group, and some were supervisors.

COMPARISON TO PREVIOUS SURVEY

The 445XOG career ladder appears more unified today than in 1976. The 1976 occupational survey identified the following clusters and independent job types: periodic maintenance teams, facilities maintenance teams, power production specialists, environmental control specialists, electrical specialists, supervisors, and quality control/evaluation personnel. In the present survey, these seven groups have merged into three: maintenance teams, PREL shop personnel, and supervisors. This merging trend suggests career ladder members specialize less today than in 1976. Otherwise, the findings of the two surveys are quite similar and suggest little change in the career ladder over the last few years. In addition, job satisfaction of career ladder personnel has changed very little over the last few years (see Table 23). While career personnel expressed more job interest in 1976 than in 1982, they showed no differences in their plans to reenlist. The only other notable difference was that more second-enlistment personnel said they would reenlist in 1982 than in 1976, but the reasons for this apparent improvement since 1976 are not clear. In summary, comparison of the 1976 and present surveys presents a picture of a fairly stable career ladder experiencing few important changes.

TABLE 23

JOB SATISFACTION COMPARISON OF 1976 AND 1982 SAMPLES*

	FIRST ENLISTMENT		SECOND ENLISTMENT		CAREER	
	1976 SAMPLE	1982 SAMPLE	1976 SAMPLE	1982 SAMPLE	1976 SAMPLE	1982 SAMPLE
I FIND MY JOB:						
DULL	16	17	14	8	3	6
SO-SO	23	20	11	18	13	27
INTERESTING	62	63	76	76	84	67
JOB USES MY TALENTS:						
NOT AT ALL OR VERY LITTLE	32	27	16	18	18	17
FAIRLY WELL TO PERFECTLY	68	72	84	82	82	83
JOB USES MY TRAINING:						
NOT AT ALL OR VERY LITTLE	22	16	16	20	21	23
FAIRLY WELL TO PERFECTLY	78	83	84	80	79	77
PLAN TO REENLIST:						
NO OR PROBABLY NO**	62	61	34	22	29	29
YES OR PROBABLY YES	38	38	66	77	71	71

* COLUMNS TOTALS MAY BE LESS THAN 100 PERCENT IF SOME PERSONNEL LEFT SURVEY ITEMS BLANK

** INCLUDES THOSE WHO WILL RETIRE

IMPLICATIONS

The findings of this survey address whether the 445XOG specialty should be split, as well as whether the basic technical training course should be channelized. Since members did not break out into groups clearly specializing in power production, plumbing, environmental control, or electrical jobs, the specialty should not be subdivided along these lines. Although career ladder members grouped into maintenance teams versus PREL shop personnel, separating these into different specialties would place an unfair burden on maintenance team personnel, since they would spend several hours per week traveling to missile sites in one assignment after another, while PREL shop personnel would always work at conveniently-located on-base shops. Nevertheless, decision-makers should investigate whether some kind of separate training for PREL shop personnel is feasible, since the job satisfaction data indicated these PREL shop personnel were relatively unhappy with the use of their training on the job. In addition, the survey data supports providing modernized facility personnel with some training different from that given to standard facility personnel, since the latter need more training on automatic switching units and oxygen regeneration units and less training on power control centers, master control panels, and monitor panels than the former. This situation, however, could change as standard facilities continue to acquire the same equipment as modernized facilities.

APPENDIX

JOB DESCRIPTIONS OF FUNCTIONAL GROUPS

I

MAINTENANCE TEAM MEMBERS
(GRP010, N=262)

TASKS		PERCENT PERFORMING
I442	PERFORM ECS STARTUPS AND CHECKOUTS	92
I441	PERFORM ECS SHUTDOWNS AND CHECKOUTS	92
I402	ADJUST ECS FLOW ALARMS	91
I403	ADJUST ECS PNEUMATIC ELECTRICAL SWITCHES	90
I405	ADJUST ECS THERMOSTATS	90
I395	ADJUST BRINE CHILLER CONTROL PANEL CONTROLS	90
I393	ADJUST AIR CONDITIONING SUBSYSTEM CONTROLS	90
I436	LEAK CHECK REFRIGERANT SUBSYSTEMS	90
I415	CHARGE REFRIGERANT SUBSYSTEMS WITH REFRIGERANT OR OIL	89
I404	ADJUST ECS RESTRICTORS	89
I418	ISOLATE MALFUNCTIONS IN AIR CONDITIONING SUBSYSTEMS	89
I401	ADJUST ECS ELECTRICAL SWITCHES	89
I396	ADJUST BRINE CHILLER CONTROL SUBSYSTEMS	89
I410	ADJUST INSTRUMENT AIR SYSTEM COMPONENTS	88
I413	ADJUST REFRIGERANT SUBSYSTEM COMPONENTS	87
I414	ADJUST VENTILATION SUBSYSTEM COMPONENTS AND CONTROLS	87
I411	ADJUST LAUNCH TUBE HEATING SUBSYSTEM CONTROLS	87
H368	REMOVE OR REPLACE CIRCUIT BREAKERS	87
I394	ADJUST AIR CONDITIONING SUBSYSTEM CONTROLS	87
I420	ISOLATE MALFUNCTIONS IN BRINE CHILLER CONTROL PANELS	87
I422	ISOLATE MALFUNCTIONS IN BRINE SUBSYSTEMS	87
I425	ISOLATE MALFUNCTIONS IN EMERGENCY AIR CONDITIONING SUBSYSTEMS	87
H380	REMOVE OR REPLACE DIESEL ENGINE HARDWARE, SUCH AS GASKETS OR BOLTS	87
H348	PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE SAFETY AND ALARM DEVICES	87
H322	ADJUST DIESEL ENGINE SAFETY AND ALARM DEVICE COMPONENTS	87
H321	ADJUST DIESEL ENGINE LUBE OIL SYSTEM COMPONENTS	86
I443	PERFORM OPERATIONAL CHECKOUTS OF AIR CONDITIONING SUBSYSTEMS AND CONTROLS	86
I406	ADJUST EMERGENCY AIR CONDITIONING SUBSYSTEM COMPONENTS	86
I426	ISOLATE MALFUNCTIONS IN ENVIRONMENTAL CONTROL MAKEUP AIR SYSTEMS	86
I502	SERVICE ECS WITH REFRIGERANT OR OIL	86
I481	REMOVE OR REPLACE BRINE CHILLER COMPONENTS	86
I429	ISOLATE MALFUNCTIONS IN INSTRUMENT AIR SYSTEMS	85
I482	REMOVE OR REPLACE BRINE CHILLER CONTROL PANEL CONTROLS	85
H317	ADJUST DIESEL ENGINE FUEL OIL SYSTEMS COMPONENTS	85
I398	ADJUST BRINE SUBSYSTEM COMPONENTS	85
I419	ISOLATE MALFUNCTIONS IN ALARM CONTROL PANEL CONTROLS	85
H314	ADJUST DIESEL ENGINE COOLING SYSTEM COMPONENTS	85
H349	PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE STARTING AND STOPPING DEVICES	84
H346	PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE BATTERY CHARGERS	84
H339	ISOLATE MALFUNCTIONS IN DIESEL ENGINE SAFETY AND ALARM DEVICES	84
I494	REMOVE OR REPLACE INSTRUMENT AIR SYSTEM COMPONENTS	84
I445	PERFORM OPERATIONAL CHECKOUTS OF BRINE CHILLER CONTROL SUBSYSTEMS	84
I443	PERFORM OPERATIONAL CHECKOUTS OF AIR CONDITIONING SUBSYSTEMS AND CONTROLS	84

MAINTENANCE TEAM MEMBERS (CONTINUED)
(GRP010, N=262)

TASKS		PERCENT PERFORMING
I451	PERFORM OPERATIONAL CHECKOUTS OF INSTRUMENT AIR SYSTEMS	84
H315	ADJUST DIESEL ENGINE CRANKING AND ALARM PANEL COMPONENTS	83
H334	ISOLATE MALFUNCTIONS IN DIESEL ENGINE FUEL OIL SYSTEMS	83
I430	ISOLATE MALFUNCTIONS IN LAUNCH TUBE HEATING SUBSYSTEMS	83
I452	PERFORM OPERATIONAL CHECKOUTS OF LAUNCH TUBE HEATING SUBSYSTEM AND CONTROLS	83
I437	PERFORM AIR FLOW BALANCING OF VENTILATION SYSTEMS	83
I478	REMOVE OR REPLACE AIR-CONDITIONING SUBSYSTEM COMPONENTS	82
H344	OPERATE DIESEL ENGINE ELECTRICAL UNITS	82
H386	REMOVE OR REPLACE DIESEL STARTING BATTERIES	82
H320	ADJUST DIESEL ENGINE GOVERNOR COMPONENTS	82
H375	REMOVE OR REPLACE DIESEL ENGINE FUEL OIL SYSTEM COMPONENTS	82
H331	ISOLATE MALFUNCTIONS IN DIESEL ENGINE COOLING SYSTEMS	82
H435	ISOLATE MALFUNCTIONS IN VENTILATION SUBSYSTEMS	82
H323	ADJUST DIESEL ENGINE STARTING AND STOPPING DEVICE COMPONENTS	82
I408	ADJUST HEATING SUBSYSTEM CONTROLS	82
I409	ADJUST HEATING SYSTEM CONTROLS	82
I447	PERFORM OPERATIONAL CHECKOUTS OF EMERGENCY AIR CONDITIONING SUBSYSTEMS AND CONTROLS	82
H383	REMOVE OR REPLACE DIESEL ENGINE SAFETY AND ALARM DEVICES	82
H332	ISOLATE MALFUNCTIONS IN DIESEL ENGINE CRANKING AND ALARM PANELS	81
H338	ISOLATE MALFUNCTIONS IN DIESEL ENGINE LUBE OIL SYSTEMS	81
H372	REMOVE OR REPLACE DIESEL ENGINE COOLING SYSTEM COMPONENTS	81
H347	PERFORM OPERATIONAL CHECKOUTS OF DIESEL ENGINE FUEL OIL SYSTEMS	81
H319	ADJUST DIESEL ENGINE GENERATOR CONTROL PANEL COMPONENTS	81
H381	REMOVE OR REPLACE DIESEL ENGINE LUBE OIL SYSTEM COMPONENTS	81
H340	ISOLATE MALFUNCTIONS IN DIESEL ENGINE STARTING AND STOPPING DEVICES	80
H335	ISOLATE MALFUNCTIONS IN DIESEL ENGINE GENERATOR CONTROL PANELS	80
H377	REMOVE OR REPLACE DIESEL ENGINE GENERATOR CONTROL PANEL COMPONENTS	80

II

POWER, REFRIGERATION, AND ELECTRIC (PREL) SHOP PERSONNEL
(GRP071, N=46)

TASKS		PERCENT PERFORMING
F216	PERFORM OPERATIONAL CHECKOUTS OF MET ELECTRICAL SYSTEMS	100
F194	ISOLATE MALFUNCTIONS IN MET ELECTRICAL HOISTS	100
F217	PERFORM OPERATIONAL CHECKOUTS OF MET HEATERS	98
F234	PERFORM PERIODIC INSPECTIONS OF MET HEATERS	98
F233	PERFORM PERIODIC INSPECTIONS OF MET ELECTRICAL SYSTEMS	98
F195	ISOLATE MALFUNCTIONS IN MET ELECTRICAL SYSTEMS	98
F215	PERFORM OPERATIONAL CHECKOUTS OF B-VAN, E-VAN, OR M-VAN ELECTRICAL SYSTEMS	98
F193	ISOLATE MALFUNCTIONS IN M-VAN ELECTRICAL CRANE	98
F252	REMOVE OR REPLACE MET ELECTRICAL SYSTEM COMPONENTS	98
F171	ADJUST MET HEATER COMPONENTS	98
F190	ISOLATE MALFUNCTIONS IN B-VAN ELECTRICAL CRANES	98
F167	ADJUST BATTERY VAN (B-VAN) ELECTRICAL CRANE COMPONENTS	98
F228	PERFORM OPERATIONAL CHECKOUTS OF TE ECSs	96
F232	PERFORM PERIODIC INSPECTIONS OF B-VAN, E-VAN, OR M-VAN ELECTRICAL SYSTEMS	96
F245	PERFORM PERIODIC INSPECTIONS OF TE ECSs	96
F168	ADJUST MAINTENANCE EQUIPMENT TRAILER (MET) ELECTRICAL HOIST COMPONENTS	96
F170	ADJUST MET ELECTRICAL SYSTEM COMPONENTS	96
F251	REMOVE OR REPLACE MET ELECTRICAL HOIST COMPONENTS	96
F169	ADJUST MECHANICAL MAINTENANCE VAN (M-VAN) ELECTRICAL HOIST COMPONENTS	96
F209	ISOLATE MALFUNCTIONS IN TE ECSs	96
F185	ADJUST TE EMPLACEMENT CONTROL PANEL COMPONENTS	96
F196	ISOLATE MALFUNCTIONS IN MET HEATERS	93
F214	PERFORM OPERATIONAL CHECKOUTS OF B-VAN HEATING SYSTEMS	93
F192	ISOLATE MALFUNCTIONS IN ELECTRICAL VAN (E-VAN), M-VAN, OR B-VAN ELECTRICAL SYSTEMS	93
F210	ISOLATE MALFUNCTIONS IN TE EMPLACEMENT CONTROL PANELS	93
F184	ADJUST TRANSPORTER ERECTOR (TE) ECS COMPONENTS	91
F250	REMOVE OR REPLACE M-VAN ELECTRICAL CRANE COMPONENTS	91
F247	REMOVE OR REPLACE B-VAN ELECTRICAL CRANE COMPONENTS	91
F187	ADJUST TE SEMITRAILER ELECTRICAL SYSTEM COMPONENTS	91
F229	PERFORM OPERATIONAL CHECKOUTS OF TE EMPLACEMENT CONTROL PANELS	91
F246	PERFORM PERIODIC INSPECTIONS OF TE SEMITRAILER ELECTRICAL SYSTEMS	89
F249	REMOVE OR REPLACE B-VAN, E-VAN, OR M-VAN ELECTRICAL SYSTEMS COMPONENTS	89
F230	PERFORM OPERATIONAL CHECKOUTS OF TE SEMITRAILER ELECTRICAL SYSTEMS	89
F266	REMOVE OR REPLACE TE ECS COMPONENTS	89
F189	CHARGE SUPPORT VEHICHLES OR SUPPORT VEHICLE ECS WITH REFRIGERANT OR OIL	87
F253	REMOVE OR REPLACE MET HEATER COMPONENTS	87
L617	REMOVE OR DISPOSE OF TRASH OR WASTE MATERIALS OTHER THAN CHROMATE, OIL OR BATTERY ACID	85
L612	MAINTAIN HANDTOOLS OR TOOL BOXES	85
G290	PERFORM OPERATIONAL CHECKOUTS OF G AND C CHILLER UNITS	85

POWER, REFRIGERATION, AND ELECTRIC (PREL) SHOP PERSONNEL
(GRP071, N=46)

TASKS		PERCENT PERFORMING
F231	PERFORM PERIODIC INSPECTIONS OF B-VAN HEATING SYSTEMS	85
F213	ISOLATE MALFUNCTIONS IN TE SEMITRAILER ELECTRICAL SYSTEMS	85
F241	PERFORM PERIODIC INSPECTIONS OF RV/G AND C AND PT ELECTRICAL SECURITY SYSTEMS	83
F224	PERFORM OPERATIONAL CHECKOUTS OF RV/G AND C VAN AND PT ELECTRICAL SECURITY SYSTEMS	83
G292	PERFORM OPERATIONAL CHECKOUTS OF G AND C LIQUID COOLING TEST SETS	83
L610	DISPOSE OF WASTE CHROMATE	80
G293	PERFORM OPERATIONAL CHECKOUTS OF G AND C MODULATING VALVE ASSEMBLIES	80
G274	ADJUST G AND C LIQUID COOLING BENCH TEST AND REPAIR SET COMPONENTS	80
F226	PERFORM OPERATIONAL CHECKOUTS OF RV/G AND C VAN ECSs	78
G282	ISOLATE MALFUNCTIONS IN G AND C CHILLER UNITS	78
F204	ISOLATE MALFUNCTIONS IN RV/G AND C VAN AND PT ELECTRICAL SECURITY SYSTEMS	78
G279	INSPECT G AND C LIQUID COOLING BENCH TEST AND REPAIR SET COMPONENTS	78
F261	REMOVE OR REPLACE RV/G AND C VAN AND PT ELECTRICAL SECURITY SYSTEM COMPONENTS	78
F181	ADJUST RV/G AND C VAN ECS COMPONENTS	78
E147	MAKE ENTRIES ON MAINTENANCE DATA COLLECTION RECORD (AFTO FORM 349)	76
F225	PERFORM OPERATIONAL CHECKOUTS OF RV/G AND C APUs	76
F227	PERFORM OPERATIONAL CHECKOUTS OF RV/G AND C VAN ELECTRICAL SYSTEMS	76
F182	ADJUST RV/G AND C VAN ELECTRICAL HOIST COMPONENTS	76
F180	ADJUST RV/G AND C AND PT ELECTRICAL SECURITY SYSTEMS	76
L609	DISPOSE OF WASTE BATTERY ACID	76
G278	CLEAN G AND C LIQUID COOLER FILTER ASSEMBLIES	76

III

TRAINING PERSONNEL
(GRP060, N=7)

TASKS		PERCENT PERFORMING
D127	SCORE TEST	100
D99	ADMINISTER TEST	100
D130	WRITE TEST QUESTIONS	100
D110	DEVELOP LESSON PLANS	100
D106	COUNSEL TRAINEES ON TRAINING PROGRESS	86
D107	DEMONSTRATE HOW TO LOCATE TECHNICAL INFORMATION	71
C81	INITIATE TO OR SAC CEM CHANGES	71
E161	RESEARCH TOs TO INDEXES, OR OTHER TECHNICAL PUBLICATIONS	57
D103	CONDUCT OJT	57
D118	EVALUATE PROGRESS OF RESIDENT COURSE STUDENTS	57
E158	MAKE ENTRIES ON TEMPORARY ISSUE RECEIPT (AF FORM 1297)	57
B30	COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	57
D125	PROCURE TRAINING AIDS, SPACE, OR EQUIPMENT	43
D122	MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	43
E151	MAKE ENTRIES ON REPARABLE ITEM PROCESSING TAG (AFTO FORM 350)	43
E147	MAKE ENTRIES ON MAINTENANCE DATA COLLECTION RECORD FORMS	43
E159	MAKE ENTRIES ON USAF HAZARD REPORT (AF FORM 457)	43

IV

SUPERVISORS
(GRP037, N=69)

TASKS		PERCENT PERFORMING
C90	PREPARE APRs	94
B30	COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	91
A1	ASSIGN PERSONNEL TO DUTY POSITIONS	84
B42	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	83
A23	SCHEDULE LEAVES OR PASSES	83
B50	SUPERVISE MISSILE FACILITIES SPECIALISTS (AFSC 44550G)	83
A19	PLAN WORK ASSIGNMENTS	80
B43	INVENTORY EQUIPMENT, TOOLS, OR SUPPLIES	77
C84	INSPECT WORK AREAS OR EQUIPMENT OTHER THAN PROTECTIVE EQUIPMENT	74
A11	ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	74
B52	WRITE CORRESPONDENCE	71
B33	DIRECT MAINTENANCE OR UTILIZATION OF EQUIPMENT, SUPPLIES, OR WORKSPACE	70
C93	REVIEW INSPECTION REPORTS	68
A6	DETERMINE WORK PRIORITIES	68

IVa

SHOP CHIEFS
(GRP084, N=30)

TASKS		PERCENT PERFORMING
B30	COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	100
A1	ASSIGN PERSONNEL TO DUTY POSITIONS	100
C90	PREPARE APRs	97
C84	INSPECT WORK AREAS OR EQUIPMENT OTHER THAN PROTECTIVE EQUIPMENT	93
A23	SCHEDULE LEAVES OR PASSES	93
B42	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	90
A19	PLAN WORK ASSIGNMENTS	90
C83	INSPECT PROTECTIVE EQUIPMENT	90
B50	SUPERVISE MISSILE FACILITIES SPECIALISTS (AFSC 44550G)	87
B43	INVENTORY EQUIPMENT, TOOLS, OR SUPPLIES	87
B52	WRITE CORRESPONDENCE	87
B33	DIRECT MAINTENANCE OR UTILIZATION OF EQUIPMENT, SUPPLIES, OR WORKSPACE	87
C93	REVIEW INSPECTION REPORTS	83
C79	INDORSE AIRMEN PERFORMANCE REPORTS (APR)	83
B44	MAINTAIN BOARDS, GRAPHS, OR CHARTS	83
C78	EVALUATE WORK SCHEDULES	80
A11	ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	80
A5	DETERMINE REQUIREMENTS FOR SPACE, [illegible] ES	80
E133	CHECK OR CHANGE EVENT LISTINGS	77
C54	ANALYZE WORKLOAD REQUIREMENTS	77
A6	DETERMINE WORK PRIORITIES	77
E165	VERIFY DATA ON MAINTENANCE ACTIVITIES (DOMA) COMPUTER PRODUCTS	73
D122	MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	73
B47	SUPERVISE APPRENTICE MISSILE FACILITIES SPECIALISTS	73
A21	REVIEW PERSONNEL REQUIREMENTS	73
C60	EVALUATE INDIVIDUALS FOR PROMOTION, DEMOTION, OR RECLASIFICATION	73
D106	COUNSEL TRAINEES ON TRAINING PROGRESS	73
A22	REVIEW POLICY CHANGES IN UTILIZATION OF PERSONNEL OR EQUIPMENT	73
A25	SCHEDULE PERSONNEL FOR SCHOOLS, TEMPORARY DUTY (TDY) ASSIGNMENTS, OR NONTECHNICAL TRAINING	73
E147	MAKE ENTRIES ON MAINTENANCE DATA COLLECTION RECORD (AF FORM 349)	70
B45	PERFORM SUPERVISORY FIELD VISITS	70
B51	SUPERVISE MISSILE FACILITIES TECHNICIANS (AFSC 44570G)	70
C53	ANALYZE MAINTENANCE REPORTS	70
D108	DETERMINE OJT TRAINING REQUIREMENTS	70
C61	EVALUATE INSPECTION REPORTS OR PROCEDURES	70
A4	COORDINATE MISSILE FACILITY MAINTENANCE WITH STAFF AGENCIES	70
E158	MAKE ENTRIES ON TEMPORARY ISSUE RECEIPT (AF FORM 1297)	67
B34	DISPATCH MAINTENANCE TEAMS	63

IVb

QUALITY CONTROL SUPERVISORS
(GRP119, N=7)

TASKS		PERCENT PERFORMING
B52	WRITE CORRESPONDENCE	100
C93	REVIEW INSPECTION REPORTS	100
B28	COMPILE INFORMATION FOR REPORTS OR STAFF STUDIES	100
C61	EVALUATE INSPECTION REPORTS OR PROCEDURES	100
C64	EVALUATE MAINTENANCE REPORTS	100
B42	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
C74	EVALUATE TECHNICAL ORDER (TO) OR STRATEGIC AIR COMMAND ENGINEERING MANUAL (SAC CEM) CHANGES	100
C65	EVALUATE MASTER CHANGE LOGS (MCL)	100
C53	ANALYZE MAINTENANCE REPORTS	100
C90	PREPARE APRs	100
C75	EVALUATE TIME COMPLIANCE TECHNICAL ORDERS (TCTO)	100
A22	REVIEW POLICY CHANGES IN UTILIZATION OF PERSONNEL OR EQUIPMENT	100
B30	COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	100
A10	ESTABLISH ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDARD OPERATING PROCEDURES (SOP)	100
C57	EVALUATE COMPLIANCE WITH MAINTENANCE POLICIES OR PROCEDURES	86
C67	EVALUATE MISSILE PERSONNEL EVALUATION PROGRAMS	86
C66	EVALUATE MATERIAL DEFICIENCIES	86
C58	EVALUATE COMPLIANCE WITH PERFORMANCE STANDARDS	86
A24	SCHEDULE MISSILE MAINTENANCE INSPECTIONS	86
A6	DETERMINE WORK PRIOITIES	86
A25	SCHEDULE PERSONNEL FOR SCHOOL, TEMPORARY DUTY (TDY) ASSIGNMENTS, OR NONTECHNICAL TRAINING	86
C70	EVALUATE QUALITY CONTROL PROCEDURES	71
C97	WRITE STAFF STUDIES, SURVEY, OR SPECIAL REPORTS	71
B44	MAINTAIN BOARDS, GRAPHS, OR CHARTS	71
B31	DIRECT DEVELOPMENT OR MAINTENANCE OF STATUS BOARDS, GRAPHS, OR CHARTS	71
C81	INITIATE TO OR SAC CEM CHANGES	71

IVc

PERIODIC MAINTENANCE TEAM CHIEFS
(GRP087, N=12)

TASKS		PERCENT PERFORMING
B50	SUPERVISE MISSILE FACILITIES SPECIALISTS (AFSC 44550G)	100
B47	SUPERVISE APPRENTICE MISSILE FACILITIES SPECIALISTS (AFSC 44530G)	100
C90	PREPARE APRs	100
E143	MAKE ENTRIES ON DANGER FORMS (AF FORM 1492)	100
E147	MAKE ENTRIES ON MAINTENANCE DATA COLLECTION FORMS (AFTO FORM 349)	92
E145	MAKE ENTRIES ON ICBM MAINTENANCE DISPATCH RECORD FORMS (SAC FORM 529)	92
E146	MAKE ENTRIES ON ISSUE/TURN-IN REQUEST FORMS (AF FORM 2005)	92
B43	INVENTORY EQUIPEMENT, TOOLS, OR SUPPLIES	92
C84	INSPECT WORK AREAS OR EQUIPMENT OTHER THAN PROTECTIVE EQUIPMENT	92
C83	INSPECT PROTECTIVE EQUIPMENT	92
E151	MAKE ENTRIES ON REPARABLE ITEM PROCESSING TAG FORMS	92
A19	PLAN WORK ASSIGNMENTS	75
B42	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	75

IVd

SUPPORT CHIEFS
(GRP072, N=6)

TASKS		PERCENT PERFORMING
C90	WRITE APRs	100
B30	COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	100
A23	SCHEDULE LEAVES OR PASSES	100
A1	ASSIGN PERSONNEL TO DUTY POSITIONS	100
B43	INVENTORY EQUIPMENT, TOOLS, OR SUPPLIES	83
B50	SUPERVISE MISSILE FACILITIES SPECIALISTS (AFSC 44550G)	83
B52	WRITE CORRESPONDENCE	83
D122	MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	83
A19	PLAN WORK ASSIGNMENTS	83
B33	DIRECT MAINTENANCE OR UTILIZATION OF EQUIPMENT, SUPPLIES, OR WORKSPACE	83
A5	DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	83

V

JOB CONTROLLERS
(GRP083, N=16)

TASKS		PERCENT PERFORMING
E134	INITIATE WORK ORDERS	94
A3	COORDINATE MISSILE FACILITY MAINTENANCE WITH SPECIALIST WORK CENTERS	88
B44	MAINTAIN BOARDS, GRAPHS, AND CHARTS	88
A6	DETERMINE WORK PRIORITIES	81
B34	DISPATCH MAINTENANCE TEAMS	75
E165	VERIFY DATA ON MAINTENANCE ACTIVITIES (DOMA) COMPUTER PRODUCTS	75
A4	COORDINATE MISSILE FACILITIES MAINTENANCE WITH STAFF AGENCIES	69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